

# Dental Digest

June 24 1949

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**June 1949**

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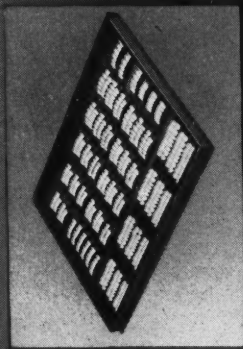
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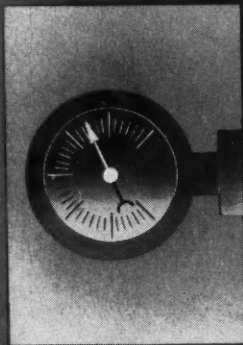
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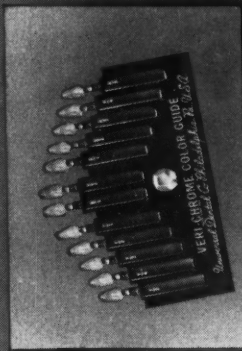
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# Dental Digest

JUNE 1949

## About Our

### CONTRIBUTORS

THEODORE H. PERLMAN, D.M.D., (North Pacific Dental College, 1923) in collaboration with Doctor R. Allen Griffith, is the author of a book, *Dental Physical Therapy*, and is acknowledged the first to make use of high-frequency currents in dentistry. He has lectured widely on the applications of these currents in the treatment of oral diseases. With the assistance of his associates, Jacob Berg, D.D.S., Paul P. Kolik, D.D.S., and Herbert Marchak, D.M.D., Doctor Perlman has been tireless in his efforts to develop a technique for the use of platinum and porcelain in dentistry. The successful outcome of extensive research is described in his current article. **THE USE OF CAST PLATINUM AND BAKED PORCELAIN IN DENTAL RESTORATIONS**, which presents a step-by-step procedure for employing these materials in daily practice.

LEONARD FRANK, a well-known roentgenologist, is a regular contributor to *DENTAL DIGEST*. Since publishing his article in the December, 1948 issue, Mr. Frank has continued his study of the condyle. In **A COMPARATIVE EXAMINATION OF THE CONDYLAR PATH** he describes the results of further research on this subject.

FRANCIS A. BULL, D.D.S., (Marquette University, 1923) M.S.P.H., (University of Michigan, 1939) is Supervisor of Dental Education of the Wisconsin State Board of Health. In the August 1948 issue of *DENTAL DIGEST* Doctor Bull stated the case for the fluorination of public water supplies. In his article this month, **WATER FLUORINATION PROVES ITS VALUE**, he reports on the results which have followed the leadership of the Wisconsin State Board of Health.

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# **The Use of CAST PLATINUM and BAKED PORCELAIN in Dental Restorations**

THEODORE H. PERLMAN, D.M.D., Chicago

## **DIGEST**

*It has long been accepted that platinum and porcelain are the two finest materials known for dental restorations and they have been used in all phases of dental prosthetics. For routine use, however, they have been neglected because of the difficulties in casting platinum and the vulnerability of porcelain to fracture. If these two obstacles could be overcome, porcelain and platinum would be the*

*perfect materials for esthetic dentistry because of their strength and their compatibility with oral tissue.*

*It is now possible to cast platinum alloy accurately and with the ease of gold. This article describes a satisfactory technique for the use of these valuable materials which fills the need for strong esthetic restorations which are economical and within the reach of the entire dental profession and the public.*

## **Characteristics of Platinum Alloy**

1. Because of the high fusing point of the alloy porcelain can be baked directly against the surface of cast platinum alloy and locked with unbelievable security.

2. This phenomenon is not true in swaged or braised platinum. There is no mechanical union in swaged platinum such as is experienced in porcelain jacket technique, allowing the platinum foil to be peeled away from the finished porcelain jacket crown.

3. It requires from 52 to 55 per cent of hydrofluoric acid to dissolve baked porcelain from a cast platinum alloy surface.

4. It is possible to fracture porcelain baked on a cast platinum surface but it is impossible to remove it by mechanical means. The surface can be chipped off in bits but can only be removed by immersion in hydrofluoric acid.

5. Because of its mechanical strength the veneer crown can be sub-

jected to an accidental blow and fractured but the facing will remain in place indefinitely.

6. It will not fracture in baking because the coefficient of expansion of this cast platinum alloy and porcelain are practically the same.

7. The porcelain and platinum alloy veneer crown resembles the natural tooth structure in some details: (a) The enamel of a tooth is often fractured and yet remains intact, and (b) the enamel of a tooth can be chipped in small pieces.

## **Advantages**

1. Because the platinum alloy used in this technique is (a) malleable, (b) ductile, and (c) highly tensile, it can be burnished and takes on a high lustre.

2. The acids of the mouth have no effect on it so that it maintains its lustre indefinitely.

3. It has better wearing qualities than any of the hard golds and therefore can be cast literally as thin as

desired (28-gauge) and still resist wear much longer than gold restorations of heavier gauge.

4. Its compatibility with oral tissues is comparable to highly fused porcelain.

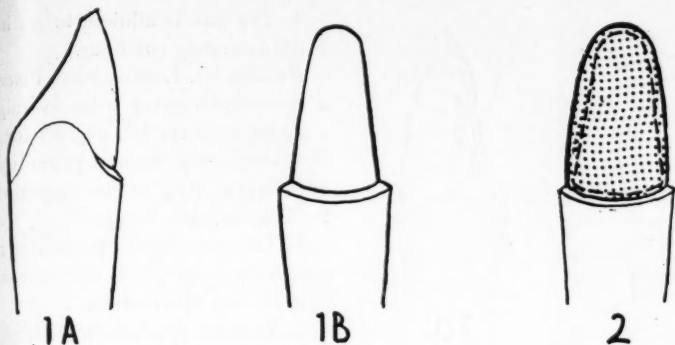
*Esthetic Qualities*—(a) Permanent in color, it can be blended to any shade, (b) the color of the polished platinum alloy is the least conspicuous of all metals, and (c) in comparison to other metals it conducts the least thermal changes.

*Diversity of Uses*—The inherent affinity of this cast platinum alloy to baked porcelain makes it possible to solder directly to the finished veneer without fear of fracturing the porcelain. The technique is therefore adaptable to all phases of restorative dentistry. It can be used as: (1) an individual jacket crown. (2) A bridge abutment. (3) An individual inlay restoration. (4) An inlay abutment. (5) It can be cast in one piece or assembled.

## **Technique**

*Preparation*—The preparation for a platinum and porcelain restoration either for a bridge or an individual crown, is the same as the preparation for a porcelain jacket or a cast gold crown. It can be a shoulder preparation or shoulderless (Figs. 1A and 1B). But if possible, in all cases some semblance of a shoulder should be attempted on the labial or buccal surface (Fig. 1B). In a technique as flexible as this it is a temptation to slight preparation. The best preparations are desired but even if the preparation is not ideal a good result can still be anticipated. However, only the amount of precision that went into it will be present in the finished case.

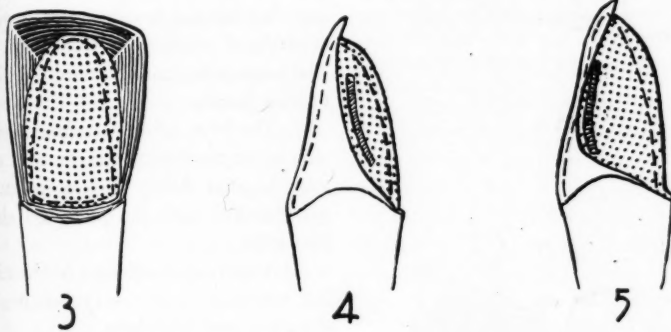




**1A.** Labial shoulder only.

**1B.** Complete shoulder preparation.

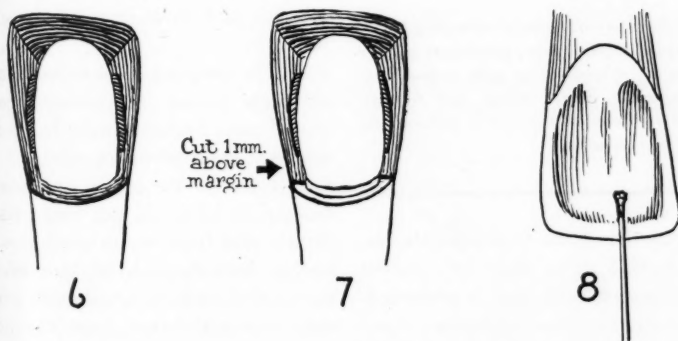
**2.** Entire surface covered with 28-gauge soft green wax.



**3.** Blue wax added for contour and anatomy.

**4.** Lateral view, showing wax extended for a soldering surface.

**5.** Lateral view, showing wax cut away so that mesial and distal surfaces can be restored in porcelain.



**6.** Conventional retention points, to be placed on both mesial and distal extremities of green wax covering.

**7.** Wax cut 1 millimeter short of gingival preparation and slightly reinforced.

**8.** Spruing technique. Wax pattern sprued at its heaviest point with 12-gauge blue inlay wax.

**Models**—1. A copper plated model is the ideal. 2. Material hard enough to carve and finish to can also be used. 3. Again, the method used in porcelain jacket or cast crown pro-

cedure can be used with porcelain and platinum alloy.

**Waxing for Contour**—1. The model is treated with oil or any other good lubricant to prevent sticking.

2. Adapt a 28-gauge soft casting wax over the entire surface (Fig. 2).

3. Reinforce the gingival with blue inlay wax.

4. The lingual, mesial, distal, and incisal surfaces are carved by adding blue inlay wax to obtain the contour and occlusion desired (Fig. 3).

5. Do not add wax over the labial or buccal surfaces unless a heavier labial or buccal surface for anatomical reasons is wanted.

6. If the casting is to be used for an abutment the surface approximating the space to be restored must be extended sufficiently to supply a soldering surface (Fig. 4).

7. If the restoration is an individual crown the mesial and distal surfaces can be extended as far lingually as desired.

8. For esthetic reasons the mesial and distal surfaces may be extended lingually to restore in porcelain the entire mesial and distal surfaces (Fig. 5).

**Waxing for Retention**—After waxing for contour the retention points (Fig. 6) are developed in wax. This can be accomplished in many ways. The preferred method is the following: 1. Make two slices about 1 to 1½ millimeters apart in the soft green wax as far lingually as possible and extending from about 2 millimeters from the gingival margin to the incisal top of the green wax.

2. Gently raise the slit wax approximately ½ millimeter above the surface of the surrounding wax.

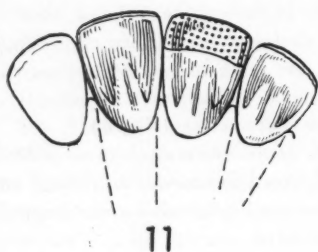
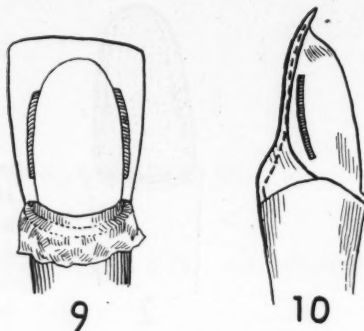
(This is done on both the mesial and distal extremities of the labial surface. The purpose is to add a little more mechanical retention. It must be remembered that baked porcelain attaches itself mechanically to a cast platinum alloy surface and therefore other mechanical means are not absolutely necessary but are placed as an added retention.)

3. Now cut the wax of the labial or buccal surface about 1 millimeter short of the gingival surface of the preparation (Fig. 7), and reinforce slightly by adding blue inlay wax.

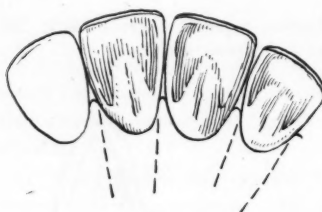
4. The wax pattern is then sprued at its heaviest surface. The spot to select normally is (a) the most incisal

**9.** Platinum casting 1 millimeter short of gingival labial preparation with .0005 platinum foil burnished to place and with small apron.

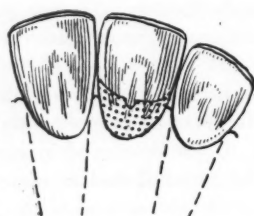
**10.** Platinum casting finished to shoulder.



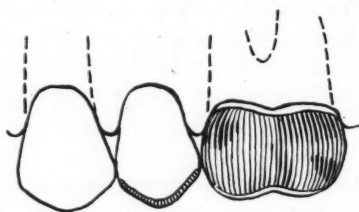
11



12



13



14

**11.** Steele's facing assembly. Lingual view showing tip Steele's pontic.

**12.** Lingual view of bridge using Steele's facing assembly.

**13.** Bridge assembly showing truspontic.

**14.** Bridge assembly showing first bicuspid in platinum, porcelain veneer crown: first molar cast gold crown, and a truspontic. This bridge can be soldered to both pontics or a lug can be placed in bicuspid.

point of the middle lobe of anteriors, and (b) on bicuspid and molars the most occlusal point on the lingual surface. Add wax for reservoir. The sprue is made of 12-gauge inlay wax (Fig. 8).

### Casting

Although the procedure is identical to normal gold castings, special apparatus is required because of (a) the nature of the investment compound, (b) the wax-eliminating process, and (c) the special torch for melting the platinum alloy. For these reasons techniques of this kind are usually

done by the commercial laboratories. For dentists doing their own casting the following technique is presented.

**Mixing**—1. The investment compound which comes in a powder and liquid should be mixed in a mechanical mixer of heavy capacity. Mixing is of utmost importance as some of the ingredients are of a heavy metal.

2. The consistency of the final mix resembles a medium thin cream and pours like a medium thin cream. The proportions are definite.

3. The entire mix is vacuumed before pouring and after filling the flask.

4. The mix is allowed to set hard (approximately one hour.)

**Heating**—1. Remove base. Place in a controlled heating oven overnight.

2. Set oven for 100 degrees for six hours and allow the heat to run up to 300 degrees. Hold at this temperature for four or more hours.

3. The oven should remain at this temperature until it is convenient to heat for wax elimination.

4. Transfer the flask to the heating oven. Run heat slowly until the oven has reached 1600 degrees. This is the best casting temperature for thin veneers.

**Making the Casting**—(1) The casting ring should be placed in a good centrifugal casting machine, (2) the platinum alloy melted, and (3) the casting made.

2. The blow torch recommended is one to be used with oxygen and city gas. Around 4,000 degrees must be generated to melt the platinum alloy properly.

3. A special crucible to fit the casting machine is necessary because of the alloy and high heat.

4. The platinum alloy is not pre-melted. The ingot is placed directly in the crucible on the casting machine, heated, and cast.

**Final Steps**—1. Allow the casting ring to chill for approximately fifteen minutes and then immerse in cold water.

2. The casting is then removed and the large pieces of investment compound are broken away from the whole mass of platinum alloy.

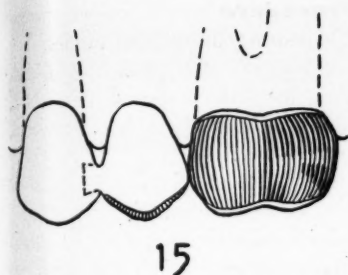
3. Immerse the entire button and casting in 52 to 55 per cent hydrofluoric acid from one to two hours or longer depending on the strength of the acid. A fresh acid will work faster than one which has been used for some time.

4. Remove the casting from the acid, wash in sodium bicarbonate solution and hold under running water until all the acid is neutralized and removed.

5. Now cut the casting from the sprue and finish to the model.

**Finishing**—1. The method of finishing platinum alloy is similar to that used with gold. Carborundum discs, stones, sandpaper, and Crocus





**15. Cross section of lug attachment.**

paper discs are used as preferred.

2. The high polish is accomplished with tripoli, rouge, and tin oxide.

3. The casting should be tried in the mouth to make certain of the exact contour and should be completely finished before the porcelain is added. The extra retention surfaces should be touched up.

4. The labial gingival surface on anteriors and the buccal gingival surface on posteriors are finished thin and are trimmed to approximately 1 millimeter from the gingival preparation (Fig. 7).

5. A piece of .0005 platinum foil is cut to fit the labial or buccal surface extending slightly over the area cut away and sufficient to leave a small apron (Fig. 9).

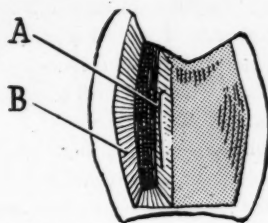
6. It is then placed on the labial or buccal surface of the model and the casting is seated over the platinum foil.

7. The platinum foil is then adapted into and against the open part of the preparation on the model by burnishing. It is now ready for the porcelain.

**Obvious Advantages**—The above procedure will give a well-finished gingival surface of porcelain against the tooth which will afford sufficient bulk at this point to obtain (a) perfect color, (b) better contour, and (c) better anatomy. Although the advantages are obvious it is not absolutely necessary to carry out this step. The platinum casting can be finished directly to the gingival margin (Fig. 10).

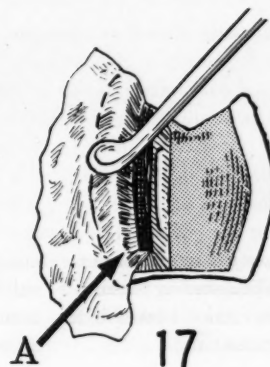
### Porcelain Technique

**Essential Factors**—(1) High fusing porcelain (2450) has given the best results. (2) Well-condensed low bak-



**16**

**16. Wax carving of inlay showing angle to be restored carved out with the enamel margin completely exposed for porcelain. (a) Retention added in wax pattern. (b) Platinum casting cut, so that labial or buccal margin can be restored in porcelain.**



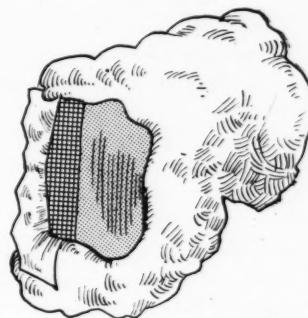
**17**

**17. .0005 platinum foil burnished to place. (a) Sticky wax flown over entire exposed cavity for porcelain. Sticky wax is added to hold platinum foil and platinum casting in correct position while removing from tooth or die.**



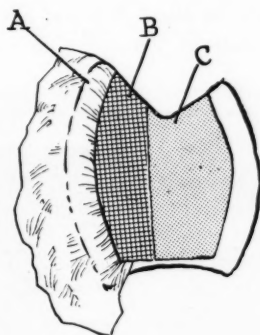
**18**

**18. Porcelain inlay investment poured around platinum foil and platinum**



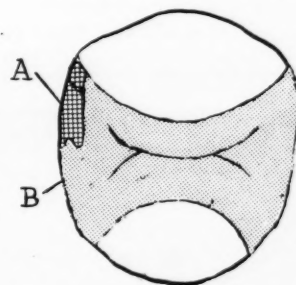
**19**

**alloy casting. 19. Porcelain baked into cavity.**



**20**

**20. (a) Platinum foil, (b) Baked porcelain, (c) Cast platinum inlay placed in tooth or on model, ready for**



**21**

**contouring. 21. Occlusal view of inlay showing (a) porcelain baked into platinum (b).**

ing, correctly timed, is necessary in all good porcelain procedures. (3) The usual precautions taken in jacket crown procedure are applicable in baking porcelain with this technique. (4) Shading is accomplished in the usual manner as the platinum surface carrying the porcelain is blocked out with opaque. (5) Platinum should not offer a problem in shading because of its color which makes it less difficult to block out than gold.

**Procedure**—1. The casting remains on the model with the .0005 platinum foil in place.

2. Opaque is spread thinly over the entire surface, slightly heavier over the platinum foil.

3. Smooth and dry.

4. The entire casting with the gingival platinum and opaque is removed and placed in the porcelain oven on a crucible.

5. Low biscuit and remove.

6. Repeat this operation as many times as is necessary to cover the exposed surfaces with a thin layer of opaque.

**Building up the Porcelain**—There are two methods of building up the porcelain:

**First Method**—(1) Lay on the gingival shade and use a low biscuit. (2) On the second bake build up contour with gingival color. (3) If a middle third color is desired this can be placed on the second bake and built up to contour. (4) Use a medium biscuit bake. (5) Contour by grinding. (6) Remove as much incisal as desired for incisal shade and add incisal; high biscuit. (7) Smooth and grind in anatomy and fuse.

**Second Method**—(1) Place gingi-

val shade and use low biscuit. (2) Use high biscuit bake and add more gingival shade if wished and middle third shade. Also add incisal. (3) After third bake grind for contour and anatomy, and fuse.

**Precautions**—1. The high biscuit bake should be tried in the mouth to check the shade, contour, and anatomy. As long as the bakes are kept low porcelain can be added as many times as necessary to produce the result wanted.

2. If the crown is to be used as an abutment it must be completely fused and finished before assembling bridge.

3. Stains can be used to rectify color provided their fusing point is at least 200 to 300 degrees above the fusing point of the solder to be used in assembling the bridge.

### Bridge Assembly

(1) Bridge assemblies are accomplished with this technique as simply as in any routine bridge work. (2) Soldering is carried out the same as in pin facing technique. (3) The usual precautions should be taken in covering the porcelain surfaces with investment plaster used in soldering any bridge although the danger of fracturing the porcelain is practically nil. (4) In some cases it may be impossible to cover the exposed porcelain completely. Do not use antflux or attempt to cover these areas. The porcelain will not crack even if the solder comes in contact with it. (5) As a precaution allow the case to chill thoroughly by itself. It is *not* advisable to chill by immersing in cold water.

### Procedure

1. Place abutments on model.

2. Prepare the pontic as usual, using the style preferred (Figs. 11, 12, 13, 14, and 15) facing, trupontic, or any other.

3. Wax in place.

4. Invest and solder.

5. No special procedure is necessary in heating the case. Use the technique desired.

6. Allow to bench cool.

7. Remove investment.

8. Clean and pickle as in any bridge procedure.

### Inlay Technique

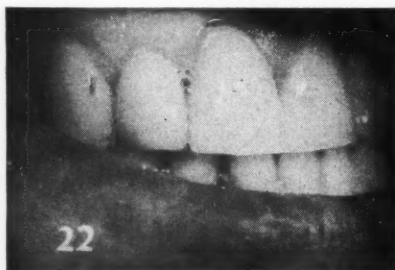
**Margins**—Preparations are the same as preparations for gold restorations. The margin or margins involved in restoring the porcelain surface must be square as porcelain cannot be burnished. All other margins can be prepared as the individual operator prefers. Platinum alloy is burnishable and can be finished and adapted to make a perfect margin.

**Model**—The type of model to be used depends on whether the case is to be finished (a) in the laboratory or (b) the mouth. If in the laboratory a copper plated die is preferred; if in the mouth, a hard stone is sufficient.

**Waxing**—1. Wax the case as in a gold casting except that the angle to be restored is carved out (Fig. 16).

2. As much protection should be given the porcelain as possible.

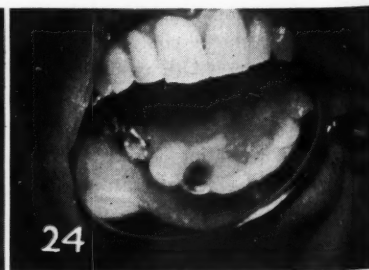
3. No porcelain should be exposed which will come in direct contact with an opposing tooth in centric or lateral movements.



22. Restoration of upper right lateral in platinum alloy and porcelain, labial view.



23. Restoration of upper right lateral in platinum alloy and porcelain, labial view.



24. Restoration of upper right lateral in platinum alloy and porcelain, lingual view.





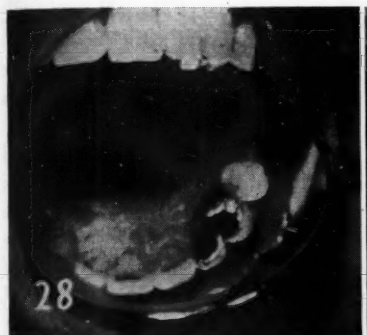
**25.** Case before start of restoration. Upper left lateral is abscessed due to



caries, and elongated. Note cuspid in lingual version.



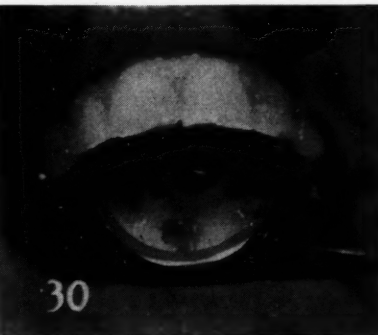
**26. and 27.** Completed restoration in cast platinum and alloy and porcelain, labial view.



**28.** Lingual view of Figures 26 and 27.



**29.** Before restoring mesial surface of upper right central.



**30.** Cast platinum alloy and porcelain restoration in place with lingual dovetail for retention. Labial and lingual view.

4. To give a little extra retention place a small piece of wax in the deepest part of opening for porcelain (Fig. 16 A).

5. Wax pattern is cast, pickled, and cleaned.



**31.** Restoring second bicuspid, first and second molar. Second bicuspid is restored with cast platinum alloy and porcelain veneer.

6. Finish for contour, occlusion, and contact point.

*Placing in Position*—1. The cavity for the porcelain is retouched and the exposed angle is cut off with a carborundum stone so that the margin in

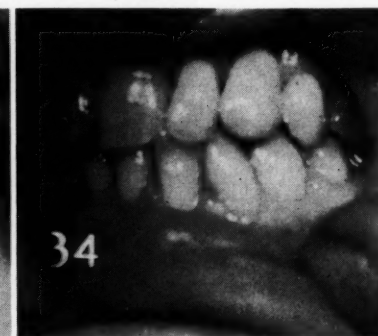
(Continued on page 256)



**32.** Upper first bicuspid. MOD cast platinum alloy inlay restoring mesio-buccal cusp.



**33.** Case after removal of upper left impacted cuspid. First bicuspid is prepared for an MOD inlay.



**34.** Cast platinum alloy and porcelain restoration in place.

# A Comparative Examination of the CONDYLAR PATH

LEONARD FRANK, San Francisco

## DIGEST

Since publishing his article, *A Report on the Normal Movement of the Condyle*, in the December 1948 issue of *Dental Digest*, the author has made a further study of two aspects of the condylar position, measurements, and the relation of the condyle to itself in its opposing positions. It is to be noted in studying the illustra-

tions that each problem consists of two exposures and that both exposures are made on the same film.

STUDIES of the condyle in the following positions have been presented previously:<sup>1</sup> 1. The open and closed position. 2. The condyle in centric position. 3. In working position. 5. In

<sup>1</sup>Frank, Leonard: *A Report on the Normal Movement of the Condyle*, *DENTAL DIGEST* 54:540-551 (December) 1948.

balance position. 6. The stereoscopic studies showed the lateral or Bennett movement of the condyle. All these studies have had great value, giving a new conception of those movements by making them visible to the eye.

## Incomplete Visualization

But there was still no way to evaluate the movement of the condyle from one position to the other except in a general way.

*Example*—In the open and closed position of the condyle it was next to impossible to visualize the distance and path traveled by the condyle because the study of the open position was on one film while the study of the closed position was on another film.

## Both Positions on the Same Film—

It was conceived that the ideal way would be to have both positions on the same film. A more accurate evaluation could then be made of the distance and of the path traveled by the condyle.

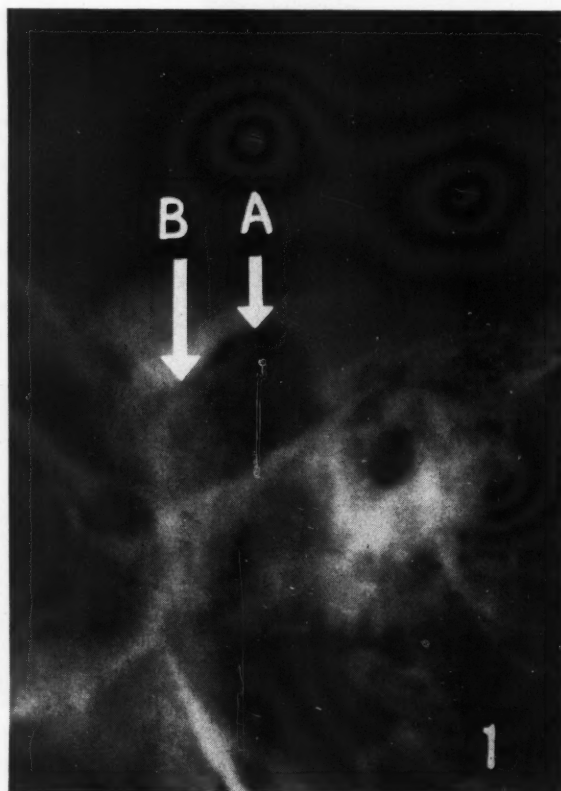
## Value of These Studies

1. Studies of this kind would allow for some measurements. These measurements would of course not be absolutely accurate because of angulation and unpreventable magnification. But they would at least give a tentative estimate of the distance.

2. Above all these studies would give a more positive visualization of the relation of the condyle to itself in its two opposing positions.

## Double Exposure Technique

These two aims were accomplished by developing a double exposure technique which enables the condyle to be shown in its two opposing positions on the same film. This does away with the almost impossible task of trying to visualize the path and the distance the condyle travels as de-



1. Condyle in the open position 'A' and the closed position 'B'.



picted in the open position on one film and the closed position on another film.

### The Results of These Studies

A careful examination of the accompanying illustrations will provide a new conception of what actually happens when the condyle moves: (1) from closed to open position, (2) from working to balance position, and (3) from retrusive to protrusive position.

### Procedure

These studies were produced in the following manner:

**Materials Used**—1. Eastman Medical Kodak Blue Brand Film. 2. Eastman Fine Grain intensifying screens.

**Position of Patient**—The head should be lying flat. Place the head so that the patient is resting on the ear with the external auditory meatus in contact with the cassette.

**Angle**—Incline the tube  $17\frac{1}{2}$  to 20 degrees toward the feet, the central ray entering about  $2\frac{1}{2}$  inches above the visible external auditory meatus.

### Technique

1. Exposure time      one second
2. Distance            contact
3. Milliampères        10
4. K.V.P.                58

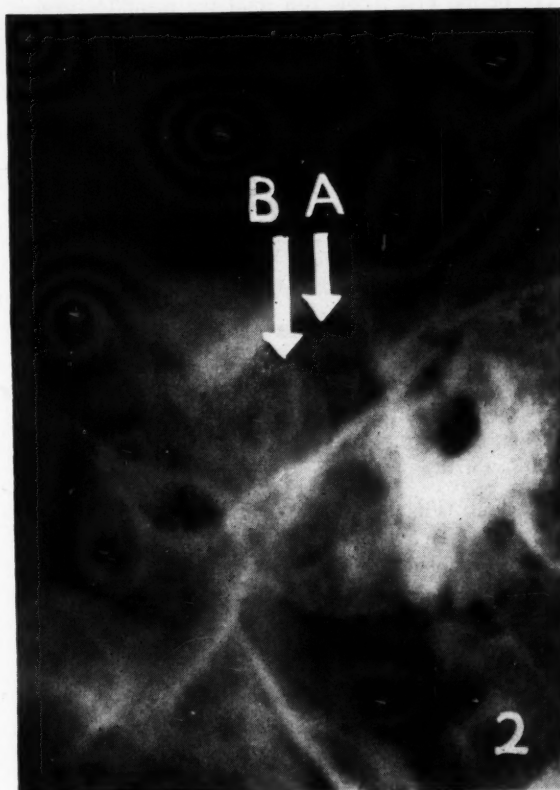
(The effective K.V.P. of the Ritter and the C.D.X. dental x-ray unit is usually set at 65 K.V.P. This may make it necessary to shorten the exposure time slightly. The Weber dental x-ray unit can be adjusted to give 58 K.V.P.).

**Distance**—In the technique described the distance is given as "contact", meaning to bring the cone as close to the head as practicable.

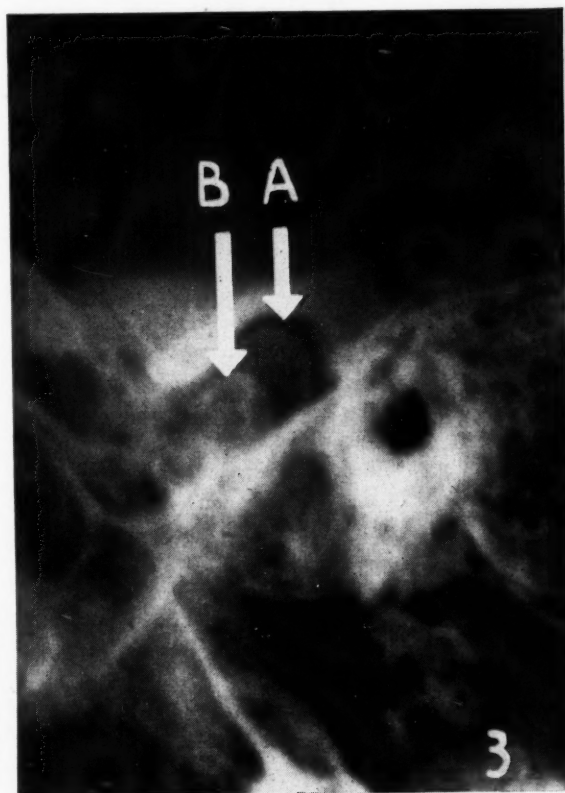
**Angle**—The angle given is  $17\frac{1}{2}$  to 20 degrees. Twenty degrees seem to give the best results but as all condyles are different it may be necessary to shorten the angle to  $17\frac{1}{2}$  degrees or even 15 degrees.

### Cautions

1. When the patient has been placed in the correct position be sure that the head is firmly immobilized so that when the mandible moves from one position to the other the head cannot move; otherwise the film will be blurred.



2. Condyle in working position 'A' and balancing position 'B'.



3. Condyle in retrusive position 'A' and protrusive position 'B'.

2. After the exposure of the first position has been made and the patient has moved the mandible into the second position, be sure that movement of the mandible has stopped before making the second exposure.

3. Before taking the x-rays instruct the patient as follows: 1. Show him

how you want the mandible opened and closed. 2. How to go from working to balance position. 3. How to change from retrusive to protrusive position. 4. Have patient practice four or five times before attempting exposures.

4. It must be thoroughly under-

stood that each study consists of two exposures, one for each position, and that *both* exposures are made on the same film.

5. Do not touch or remove cassette until both exposures have been made.

450 Sutter Street.

## ***The Use of Cast Platinum and Baked Porcelain in Dental Restorations***

(Continued from page 253)

will be restored in porcelain (Fig. 16 B).

2. Platinum foil .0005 is adapted on the exposed margin with sufficient excess for an apron and with a sufficient amount under the platinum alloy inlay.

3. The inlay is then firmly placed into position.

4. The foil is burnished into place (Fig. 17).

5. Sticky wax is then flown into cavity to hold the platinum foil and inlay in position (Fig. 17 A).

6. Flow porcelain inlay investment into axial part of inlay (Fig. 18).

7. The platinum alloy inlay and platinum foil are now held in position.

8. The wax is boiled out.

9. Porcelain is now baked into the cavity (Fig. 19) using the same procedure as in baking veneer crowns. Opaque, base, and incisal shades. Keep at a low biscuit heat.

10. Remove plaster carefully.

11. The platinum foil is now held into position with platinum alloy inlay by the porcelain.

12. Place in the tooth or on the model (Fig. 20). Trim off excess and adapt to margin. If more porcelain is

needed, add at this time.

13. It is not necessary to reinvest as the platinum foil serves as a matrix for the porcelain.

14. It can be refitted and altered as many times as desired as long as the porcelain is kept at no more than a high biscuit bake.

15. When color, contour, and margins are satisfactory, place in oven and fuse.

16. Remove platinum foil and cement into place.

25 East Washington Street.

## ***Case History***

LEO S. SEIDNER, D.D.S., Chicago

### ***A Typical Case***

Miss Z, a college graduate 24 years old, presented a typical case of gingivitis. This was the first attack as far as she knew. The usual treatment was administered as follows: 1. Penicillin in tablet form (20,000 units each) to be taken internally every four hours. 2. Home care consisting of equal parts of hydrogen peroxide and water to be used as a mouth rinse twice daily until her next appointment a week later. 3. The patient was requested to report by phone in three days. At that time the soreness was somewhat alleviated but the bleeding had not much abated.

*Patient's Interest Aroused*—She was interested to learn that emotional disturbances do produce pathologic oral manifestations and was surprised at the correct analysis of her own personality. She confessed that she had a tendency to fly off the handle and often gave way to temper and spells of crying.

*Mental Hygiene Beneficial*—It was a pleasant surprise to be greeted happily on her next appearance with the remark, "Well, doctor, I guess you were right. I didn't allow anything to upset me and my mouth feels much better." Examination proved this to

be true. Recovery seemed to be complete. There was no swelling and no bleeding. The gingival tissues hugged the teeth tightly and were pink and healthy.

### ***Summary***

1. This report marks a two-year period during which the patient was seen every six months.

2. There has been no recurrence so far and the mouth is in excellent health.

3. Dental practitioners engaged in the prevention and correction of dental ills cannot be expected to assume the specialized role of psychiatrist.

# WATER FLUORINATION

## *Proves Its Value*

F. A. BULL, D.D.S., M.S.P.H., Madison, Wisconsin\*

### DIGEST

*Convinced of the overwhelming evidence in favor of the benefits derived from the fluorination of public water supplies, in 1945 the Wisconsin State Dental Society adopted a resolution recommending that one part per million of fluorides be added to public water supplies deficient in fluorides. It was provided that the addition be carried out under the supervision of dental, medical, engineering, and public health control.*

*This leadership was followed by similar action in many Wisconsin cities. As the complete results of improvement in dental health from the fluorination of public drinking water cannot be made available for a dozen years or more after the first fluorination, annual examinations of the*

*school children of the city of Sheboygan were instituted for the purpose of obtaining comparative figures on the reactions of the same 2500 school children to the fluorination of the water supplies. The first examination was made before fluorination; the others are being conducted each succeeding year. The third annual examination of the school children of Sheboygan has been completed.*

*In order that the general public may be made aware of the positive benefits gained from the addition of one part per million of fluorides to public water supplies, a report of the findings of these examinations and the facts concerning the steady increase of fluorination of communal water throughout the state of Wisconsin is presented in this article.*

### Results of Extensive Surveys

Numerous dental surveys throughout the United States and other countries have demonstrated repeatedly that wherever a public water supply contains naturally one part per million or more of fluorine, dental caries in the permanent teeth in the native born is reduced about 70 per cent. These surveys also show that one part per million of fluorine is all that is necessary to produce this beneficial result.

### Artificial vs. Natural Fluorides

The question as to whether or not the addition of artificial fluorides to

\*Supervisor, Dental Education, Board of Health, The State of Wisconsin.

public water supplies would produce the same beneficial effects as fluorine naturally present in the water has been answered as follows:

1. Authorities in chemistry and biochemistry agreed unanimously that artificially fluorinated water was exactly the same as so-called natural fluorine water.

2. Both (1) laboratory research and (2) animal experimentation showed that artificially fluorinated water produced exactly the same results as those produced with natural fluorine water.

(The fluorine found in water, whether natural or artificially fluorinated, is in the ion form.)

*Evidence Challenged*—The favor-

able results brought forth by surveys on the effects of fluorination of water have been objected to on the following grounds:

1. Most research workers termed the evidence "presumptive" and argued that artificial fluorination of public water supplies should not be recommended to the public until "conclusive" evidence was available.

2. Public water should have been fluorinated for at least 14 years before the evidence could be called conclusive.

3. Some research workers defined "conclusive" evidence in this matter only that which would be obtained after a generation had passed in which artificially fluorinated water had been used.

(If the latter line of reasoning is accepted then as far as caries prevention is concerned the present generation must be written off as a total loss.)

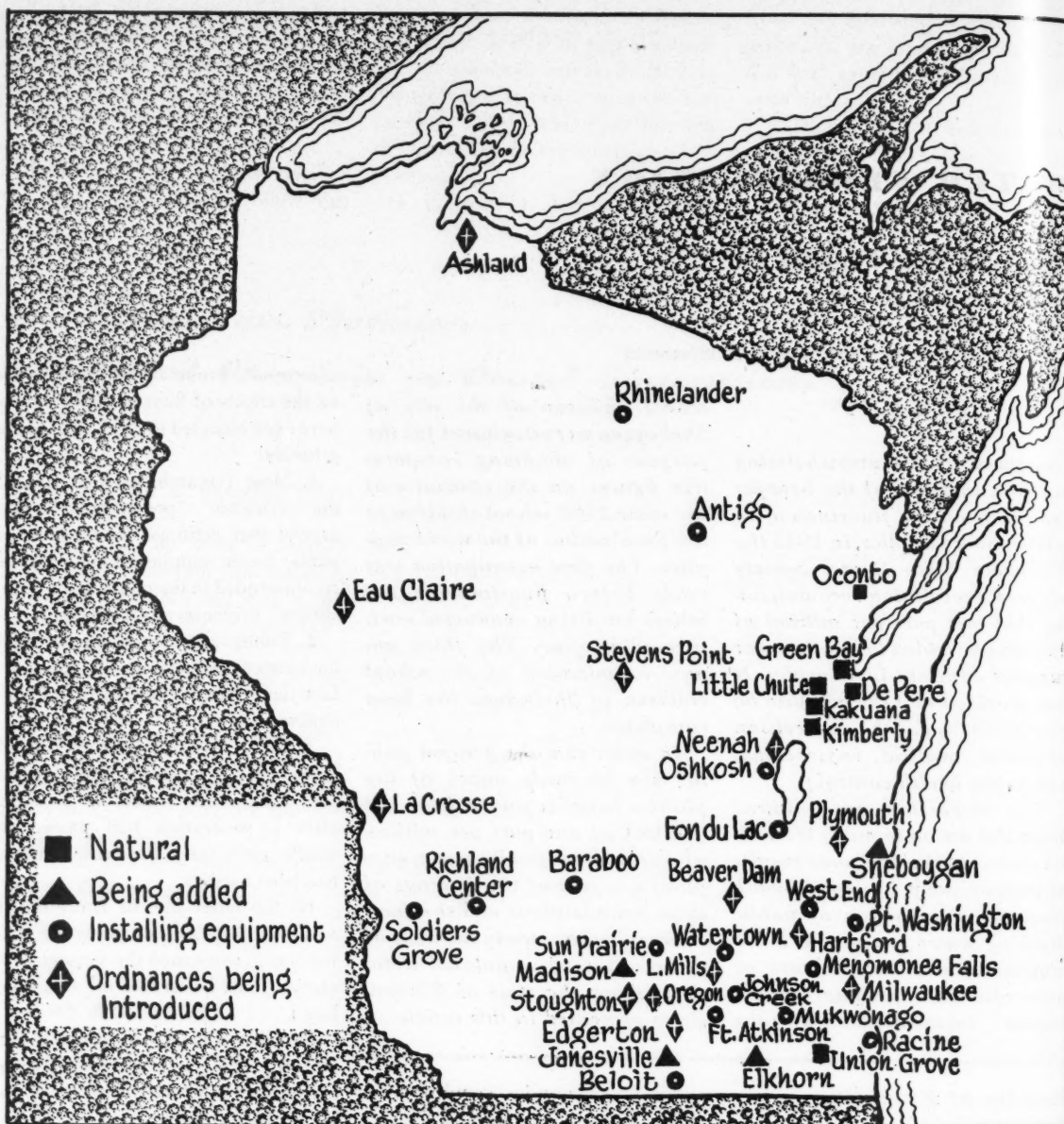
*Decision at the Local Level*—1. The answer to the question of when there is sufficient evidence to justify a public health program should not, and has not, been left to the judgment of research workers.

2. Such a decision must be made by public health officials and the public.

3. It is important that the decision is made at the *local* level, not at the national level.

*Historic Examples*—Practically all of our accepted public health programs were in operation at the local level anywhere from 10 to 30 years before they had national approval. Such important public health programs as (1) chlorination of public water supplies, (2) immunization programs, (3) iodine in goiter pre-





Map showing the fluorination of public water supplies in various cities in the state of Wisconsin, as of January 15, 1948.

vention, (4) the prevention of gonorrheal blindness at birth, and (5) the abolition of the common drinking cup are historic examples of public health decisions and actions at the local level—not at the national level.

#### **Resolution Unanimously Adopted**

After extensive research and exhaustive study of all the available data, in 1945 the Wisconsin State Dental Society officially went on record as follows:

"Resolution adopted unanimously by the house of delegates of the Wis-

consin State Dental Society at the Seventy-fifth annual convention at Milwaukee on March 19, 1945:

"Whereas: We the members of the Wisconsin State Dental Society's Fluorine Committee, convinced that the overwhelming weight of the evidence now precludes any doubt that a drinking water supply containing a concentration of one part per million of fluorine, as fluorides, inhibits dental decay,

"And Whereas: All evidence shows that the optimum of one part per million of fluorine, as fluorides, in water has produced no untoward results,

"We therefore recommend that public water supplies deficient in fluorides have their concentration raised to one part per million of fluorine, as fluorides, to inhibit dental decay, providing that such addition is under dental, medical, engineering, and public health control."

#### **Resolution Approved**

After considerable study the Wisconsin State Board of Health ap-

proved the action of the Wisconsin State Dental Society. The present official policy of the Wisconsin State Board of Health is as follows: "Fluorination policy adopted by the State Board of Health at its meeting on December 20, 1946:

"In the light of additional data and information now available relative to the addition of fluorine to public drinking water supplies as a means of reducing the incidence of caries in teeth in children, the Board hereby restates its policy re' fluorination of city water supplies as follows:

"Controlled fluorination of drinking water appears to give promise of a substantial reduction in tooth decay to children whose mothers were ingesting protective amounts of fluorine during pregnancy and who, as infants and children, have continued to use water containing one to one and one-half parts per million of fluorine during their twelve years of life, and therefore the Board is in accord with having cities set up fluorination projects where acceptable controls are established and maintained."

### Results of Leadership

1. The action of the Wisconsin State Board of Health resulted in five Wisconsin cities, Sheboygan, Elkhorn, Madison, Janesville, and Beloit, fluorinating their public water supplies.

2. Cities which have voted to fluorinate their water and are now installing equipment to do so are the following:

Antigo	Oregon
Baraboo	Oshkosh
Fond du Lac	Port Washington
Fort Atkinson	Racine
Hartford	Reedsburg
Johnson Creek	Rhineland
Lake Mills	Richland Center
Menominee Falls	Sun Prairie
Minocqua	Soldiers Grove
Mukwonago	Stoughton
Neenah	Watertown
	West Bend

### Official Approved Sought

As of January 15, 1949 the following cities have introduced ordinances in their common councils for official

approval to fluorinate their public water supplies:

Ashland	Edgerton
Beaver Dam	La Crosse
Eau Claire	Milwaukee
	Stevens Point

### Greatest Benefits of Fluorination not Immediately Demonstrated

In order to obtain the greatest benefits from the fluorination of water the fluorinated water must be used from birth to about twelve years of age. Surveys show that immunity is then retained throughout life. A city beginning today to fluorinate its public water supply will not be able to demonstrate a 70 per cent reduction in dental caries in its children until twelve or fourteen years have passed.

*Long Wait*—From twelve to fourteen years is a protracted period of time to wait before being able to show the public exactly how much dental caries can be prevented by fluorination and it was impossible to predict how long it would be following the fluorination of a public water supply before an appreciable improvement in the dental health of the children could be made evident.

*Annual Survey of School Children*—It was therefore decided to make a survey of all the school children (born and raised) in the city of Sheboygan (1) before they began to fluorinate their public water supply (one part per million) in February, 1946, and (2) to repeat this survey annually following fluorination. In this way the caries rates could be established on about 2500 children before fluorination and each year following fluorination. Doctor G. J. Hildebrand, City Health Officer, has arranged for these surveys annually. Doctor A. H. Finke, City Dentist, and the author are conducting the examinations.

### Results of Third Postfluorination Survey

The third postfluorination survey at Sheboygan has been completed (1) in the kindergarten (5 to 6 years). (2) in the fourth grade (9 to 10

years), and (3) in the seventh, eighth, and ninth grades (12, 13 and 14 years.) This survey shows the following results:

1. In less than three years the caries rate (D.E.F.) for the kindergarten children has been reduced from 4.80 to 3.46—an improvement of 28 per cent (Chart I).

2. The caries rate for the fourth grade children has been reduced from a D.M.F. rate of 3.03 to 2.46—an improvement of 18 per cent (Chart II).

3. The D.M.F. for the seventh, eighth, and ninth grades has dropped from 8.54 to 6.92—an improvement of approximately 19 per cent (Chart III).

### Reduction of Dental Caries in the Deciduous Teeth

The following facts, of importance to cities now fluorinating their public water supply, should be noted in connection with the action of fluorine in the deciduous teeth:

1. While approximately one part per million of fluorine gives the same protection against dental caries as two or three parts per million in the permanent teeth, this does not hold true for the deciduous teeth.

2. In the deciduous teeth the maximum protection is obtained at two parts per million.

3. As the fluorine content is decreased below two parts the caries rate increases.

Chart IV shows how the D.E.F. rate for deciduous teeth increases when the fluorine content falls below two parts per million while the D.M.F. rate of the permanent teeth remains the same at one part per million as at two parts per million.

### Evidence of Benefits

To the critics who may claim that the improvement shown in a three-year period still is not conclusive, that it will require another three, five, ten, twenty, or thirty years to obtain positive proof, the opinion of the Wisconsin State Board of Health is that evidence has been presented that the artificial fluorination of a public water supply for three years has cut down caries about 20 per cent.

**SHEBOYGAN**  
**4th Grade (9 years)**

	Number	Teeth Filled	Anterior Teeth Filled	Anterior Surfaces Filled	Teeth Carious	Anterior Teeth Carious	Anterior Surfaces Carious	Teeth Extracted	Needing Extracting	1st Molars Filled	1st Molars Carious	1st Molars Extracted	Needing Extraction	D.M.F.
<b>1945</b> <i>Pre-fluorination</i>	614	1334	70	93	462	83	96	67	41	1242	300	58	43	3.03
<b>1948</b> <i>After 3 years of fluorination</i>	483	859	21	23	279	64	76	41	10	806	189	41	10	2.44

**Chart I** Sheboygan, Kindergarten (5-6 years). 1945, before fluorination. 1948, after three years of fluorination.

**SHEBOYGAN**  
**7th, 8th, 9th Grades (12-14 years)**

	Total Number	Teeth Filled	Anterior Filled	Anterior Surfaces	Carious	Anterior Carious	Anterior Surfaces	Extracted	Need Extraction	First Molars Filled	First Molars Carious	First Molars Extracted	First Molars Need Extraction	D.M.F.
<b>1945</b> <i>Pre-fluorination</i>	1877	11993	2292	2699	2754	853	962	1287	206	5139	510	1054	196	8.54
<b>1948</b> <i>After 3 years of fluorination</i>	1442	7757	1278	1517	1466	571	670	765	148	3767	467	643	105	6.92

**Chart II** Sheboygan, 4th Grade (9 years). 1945, before fluorination, 1948, after three years of fluorination.

**SHEBOYGAN**  
**Kindergarten (5-6 years)**

	Total Pupils Examined	Teeth Filled	Anterior Teeth Filled	Anterior Surfaces Filled	Compound Fillings	Posterior Teeth Extracted	Posterior Teeth Needing Extraction	Teeth Carious	Anterior Teeth Carious	Anterior Surfaces Carious	Compound Cavities	D.E.F.
<b>1945</b> <i>Pre-fluorination</i>	416	573	11	11	414	80	192	1355	333	443	795	4.80
<b>1948</b> <i>After 3 years of fluorination</i>	525	737	10	10	424	42	48	1037	273	308	538	3.46

**Chart III** Sheboygan, 7th, 8th, and 9th Grades (12-14 years). 1945, before fluorination. 1948, after fluorination.



# **Comparison of D.M.F. and D.E.F. Rates** **In Cities Having Different Amounts of Fluorine in Their Public Water Supplies**

<i>Fluorine Content of Public Water Supply (Parts per million)</i>	<i>City</i>	<i>Permanent Teeth D.M.F. (decayed, missing, filled) 8th Grade Children</i>	<i>Deciduous D.E.F. (decayed, extracted, filled) Kindergarten Children</i>
2.30	Green Bay	2.7	1.25
2.00	De Pere	2.6	1.13
1.80	Kaukauna	2.8	1.93
1.50	Oconto	2.9	2.54
1.20	Kimberly	2.6	2.74
1.00	Union Grove	2.9	2.80
.05	Madison	9.00	4.64
.05	Sheboygan	8.90	4.80

**Chart IV** Comparison of D.M.F. and D.E.F. rates in cities having different amounts of fluorine in their public water supplies.

Even if dental caries were never reduced farther with the fluorination of a public water supply, recommending this public health measure to any community would be justified.

(The cities of Newburgh, New York and Brantford, Ontario have both reported comparable reduction in D.M.F. rates following fluorination of their public water supplies.)

## **Methods Used in Wisconsin**

Fluorine is being added to public water supplies in Wisconsin by three different methods:

1. The city of Sheboygan is adding sodium fluoride powder.

2. The cities of Elkhorn and Janesville are adding a 3½ per cent sodium fluoride solution.

3. The city of Madison is adding hydrofluoric acid.

(All three of these methods have

proved practical and inexpensive and the fluorine content of the water can easily be controlled to the exact amount desired.)

## **Conclusions**

1. The great improvement in the dental health of the children of Sheboygan shown by figures obtained from three annual surveys, positively demonstrates that the artificial fluorination of public water supplies will prevent dental caries as effectively as natural fluorine water.

2. The cost of fluorination is exceedingly small. In the city of Sheboygan the cost of fluorinating the water supply last year was eleven cents per capita.

3. Every community having a pub-

lic water supply can reduce the dental caries in future generations from 65 to 70 per cent by the practical and inexpensive process of fluorinating public water supplies.

4. It is now the prerogative of any community with a public water supply to decide (1) whether children of 14 years of age are to continue to have the present D.M.F. rate of 10 or a rate of 3, and (2) whether adults of 45 years of age are to continue the present D.M.F. rate of 21 (with eleven teeth extracted) or have a D.M.F. rate of 7 (with one tooth extracted.)

5. The small expenditure of approximately ten cents per capita annually for water fluorination will insure the enormous improvement described herein in the dental health of any community.

*State Office Building.*

## **We Can't Pay You, But—**

NO DENTAL author can ever be paid for a valuable technical or scientific article. The value of such material is above a monetary basis. In the preparation of a technical article, however, an author often expends money for drawings, photographs, models, or graphs. We should like to help

defray some of these expenses.

*Until further notice, DENTAL DIGEST will allow \$25.00 toward the cost of the illustrations provided by the author of every article accepted.*

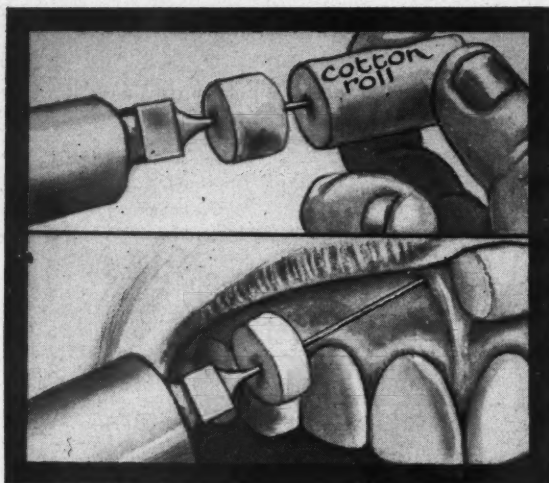
If you have a constructive idea, an innovation, a new result of tried and proved experiment, put it down in

writing, illustrate it, and send the material to: DENTAL DIGEST, 708 Church Street, Evanston, Illinois.

We can make suitable black-and-white cuts from Kodachrome transparencies.

*We hope that you will accept this invitation!*

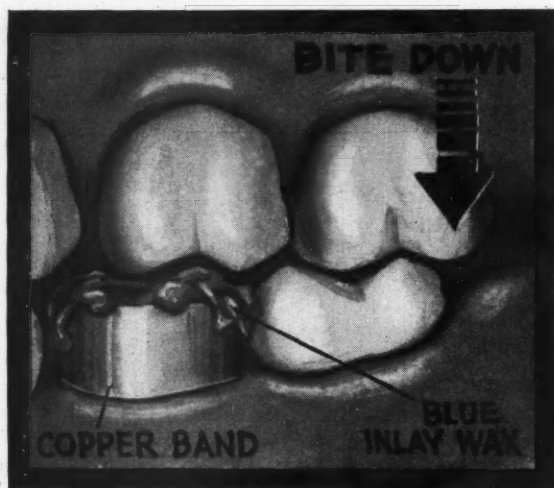
## Clinical and Laboratory



### Masking the Injection Needle

Robert Atterbury, D.D.S., Chicago

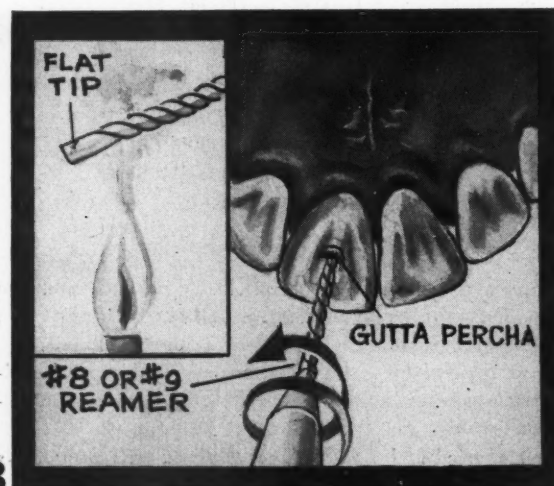
1. Most patients are apprehensive of seeing a needle. The drawing shows a manner of keeping the needle out of sight prior to injection by covering the needle with a cut cotton roll. The needle is carried to the site of injection and the cotton roll is slipped off and inserted into the vestibule of the mouth.



### Impressions for a Full Cast Crown

Murry Blum, D.D.S., Brooklyn

2. Contour a copper band to the gingival margin of the preparation, just short of occlusal contact. Fill the snug fitting band with blue inlay wax, and place in proper position on the tooth. Have the patient bite to register the proper occlusion. Invest the inside of the impression with the investment material of choice. Allow to set. With care remove the copper band. Complete the contour of the crown, add contact points and reinvest.



### Compressed Root Canal Filling

Maurice Murphy, D.D.S., Toronto

3. In using gutta percha to fill a root canal, pack it in position with a root canal reamer. The reamer should be heated slightly and its tip ground flat. Rotate the reamer in a counterclockwise direction to pack the gutta percha firmly into the canal.

### READERS are Urged to Collect \$10.00

For every practical clinical or laboratory suggestion that is usable, DENTAL-DIGEST will pay \$10.00 on publication.

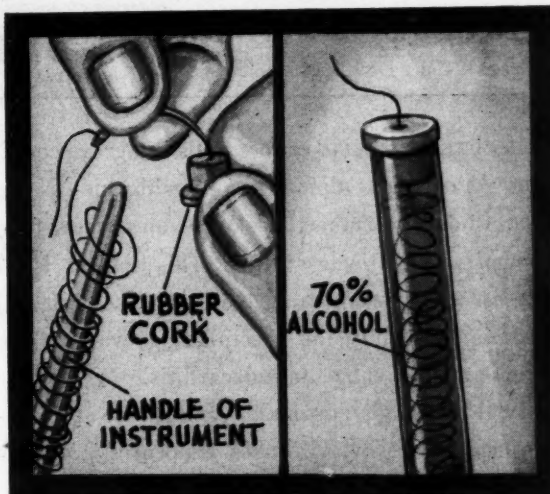
You do not have to write an article. Furnish us with rough drawings or sketches, from which we will make

## SUGGESTIONS . . . .

### Sterile Suture Holder From an Anesthetic Tube

Major W. O. Orsinger, (DC) Selma, Alabama

4. Wind five feet of suture material on the handle of a smooth instrument. Thread the needle through the diaphragm cork of the tube. Slip the coil of suture from the instrument handle carefully and insert in the tube. Fill the tube with 70 per cent alcohol and replace the cork.

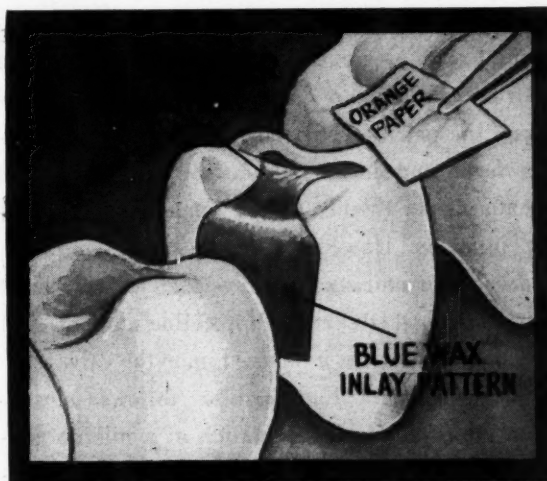


4

### Making Wax Patterns

Jules Manford, D.D.S., Flushing, N.Y.

5. An orange transfer paper used by sculptors is used as an articulating paper to check high spots on blue wax direct patterns. Biting gently will leave an orange mark to register the high spot. This is in good contrast to the blue wax. The orange transfer paper may be obtained in an art supply store.

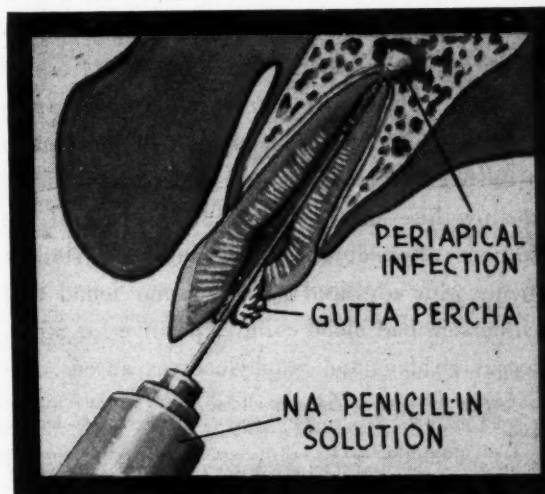


5

### Penicillin Treatment of Periapical Infection

H. George Browdows, D.D.S., Rochester, N.Y.

6. Draw 2 cc. of 100,000 unit sodium-penicillin solution into a 25-gauge needle held in a Luer-Lok syringe. Insert the needle into the root canal as far as it will go. Seal the opening around the needle with gutta percha. Inject the solution slowly. The gutta percha will prevent the penicillin solution from escaping. The solution will be forced to make a direct connection with the periapical area of infection.



6

suitable illustrations; write a brief description of the technique involved; and jot down the advantages of the technique. This shouldn't take ten minutes of your time.

Turn to page 267 for a convenient form to use.

Send your ideas to: Clinical and Laboratory Suggestions Editor, DENTAL DIGEST, 708 Church Street, Evanston, Illinois.



## The EDITOR'S Page

SUBACUTE BACTERIAL endocarditis is a grave condition. At one time almost anyone with this disease died. Under present methods of treatment more than one-half the patients survive. This subject is of interest to dentists because the removal of infected teeth is frequently the precipitating event in the development of subacute endocarditis.

Paul S. Rhoads<sup>1</sup>, professor of medicine at Northwestern University, evaluates endocarditis in this manner:

*The Precipitating Event:* "Which eventuates in vegetations upon the valvular or mural endocardium is often less easily recognized than the 'background' pathologic changes. Indeed, more often than not, no definite precipitating factor is recognized, the patients' only complaints being continuing fever and increasing fatigue, weakness and anemia in the absence of any immediately preceding infection. However, clinical studies indicate, and experimental studies prove that bacteria must enter the blood stream in appreciable numbers and in some way become implanted upon the valves."

*Development:* "Endocarditis follows closely upon the probable dissemination of a microorganism—usually *Streptococcus viridans*—from a recognizable focus of infection. In subacute bacterial endocarditis the principal recognized foci are the upper respiratory tract (including tonsils and sinuses), infected teeth and gums, nonspecific prostaticitis, infected hemorrhoids, and urinary tract infections. . . . Operative manipulation in the areas mentioned frequently causes a transient bacteremia but in some instances—such as acute tonsillitis or acute pyelitis—bacteremia occurs as part of the infection. . . . Round, Kirkpatrick, and Hails<sup>2</sup> studied patients with advanced gingivitis and found that such persons had blood cultures positive for *Streptococcus viridans* and *Staphylococcus aureus*, fol-

lowing the chewing of mint candies."

*Dental Correlation:* "In twenty-five instances at intervals of ten minutes, three hours, and twenty-four hours after tooth extractions positive cultures were obtained in eight cases (32 per cent.)"

*Prophylaxis:* "Our own plan in dealing with persons known to have chronic rheumatic heart disease is to hospitalize the subjects for tooth extractions, antrum washings, tonsillectomy, and related procedures, if possible; they are then given penicillin by intramuscular injection of the aqueous solution in doses of 25,000 to 40,000 units every three hours beginning at least four hours before the surgical procedure and continuing for at least thirty-six hours afterwards. When hospitalization was not possible we have frequently given 300,000 units of penicillin in oil and beeswax a few hours before tooth extraction and again twelve hours later. No bacteremia has resulted after these procedures but twice we have encountered severe allergic reactions to the penicillin in oil and beeswax. When sulfonamides have been used we have usually chosen sulfadiazine, starting with an initial dose of 3 gm. and following with maintenance doses of 1 gm. every four hours for forty-eight hours, administering 3 gm. of sodium bicarbonate with each dose."

*Focal Infection:* "A rekindling of interest in focal infection would also do much in the prevention of subacute bacterial endocarditis. And in this regard once more the great need for anticipating the consequences of slight infection merits re-emphasis. Foci should be eliminated before they have acted over a long period as sensitizing foci from which bacterial toxins are spread or as atriums from which bacteria are disseminated into the blood stream."

Rhoads is entirely correct in his plea for a "rekindling of interest in focal infection." We have been too indifferent to the subject in recent years and have transferred our faith and our interest to treating the end points of disease with the antibiotics.

<sup>1</sup>Rhoads, Paul S.: Subacute Bacterial Endocarditis: Etiologic Considerations and Prophylaxis, M. Clin. North America (January) 1948, Chicago Number.

<sup>2</sup>Round, H.; Kirkpatrick, H.J.R.; and Hails, C.G.: Further Investigations on Bacteriological Infections of the Mouth, Proc. Royal. Soc. Med. 29:1552 (October) 1936.



## Chloromycetin

Since the introduction of the antibiotics, penicillin and streptomycin, investigators have been searching the soil for organisms capable of yielding useful antibiotics. Several new agents are being investigated and a great deal of work is being done at the present time in many laboratories.

One of the latest antibiotics to gain a place in the chemotherapy of diseases is chloromycetin. Several men have had a part in the development of this antibiotic. Preliminary examination of chloromycetin showed that it had some action on the viruses of the psittacosis lymphogranuloma group. Also it inhibited a number of the rickettsiae.

Appreciable amounts of chloromycetin are found in blood and urine 30 minutes after being given by mouth. This indicates a rapid absorption from the gastrointestinal tract. Only about 10 per cent of the total amount of the drug given daily is recovered in active form in the urine. Therefore it seems apparent that much of the drug is metabolized.

Few signs or symptoms of toxicity have been observed to date, during administration or following administration. Examinations of the blood and urine show no abnormalities. Since the drug is rapidly excreted or inactivated its administration at fairly frequent intervals is obviously indicated.

There have been favorable results reported in several cases of typhus from many different parts of the world. Usually its routine of treatment consists of an initial dose of approximately 50 milligrams of chloromycetin per kilogram of body weight. After this, a dosage of .2 to .3 grams of drug by mouth every two to four hours for a variable period of time is given.

One reliable group of investigators reports that the drug exerts a specific therapeutic effect in patients with typhoid fever. However, the optimal schedule of administration of the drug is still to be determined.

As further work is being carried on

# MEDICINE

## and the Biologic Sciences



with chloromycetin another new antibiotic is being developed. This is aureomycin. It promises to take a prominent place among the antibiotics.

*Symposium; Chloromycetin, Internat. M. Digest 53:368-372 (December) 1948.*



## Psoriasis

Psoriasis is a dermatosis which originates as small, bright red papules. These rapidly or slowly increase in size to form raised, flat-topped disks or plaques. The plaques are of varying size and shape and usually covered with dry adherent scales.

The condition is more often chronic than acute. It has a predilection for the knees, elbows, and scalp. The eruption may become generalized at times involving even the nails. There is a seasonal variation with a majority of the exacerbations in the winter months.

The cause of the disease is unknown and treatment does not produce a permanent cure. The general health is not usually affected.

Of all skin diseases observed, psoriasis constitutes 6 per cent. It may occur at any age but ordinarily the disease begins in the second or third decade, most often between the ages of 15 and 30 years. After the age of 45 it seldom makes its first appearance.

The disease occurs in females as frequently as in males. In the Negro the condition is rare. It is noninfectious and noncontagious but there is a familial incidence in 25 to 40 per cent of the cases. This seems to be a familial predisposition and not a dominant characteristic.

In the Arctic and Temperate zones the disease is common, but it is less common in the Tropic zone. In the Temperate zone the disease is more prevalent in winter than in summer. Approximately 75 per cent of the patients with psoriasis will develop recurrences or exacerbations of the eruption in cold weather but will improve with the onset of warmer weather in May and June. Some patients claim no change with the seasons and a few state that the condition is worse in summer than in winter.

Numerous theories have been proposed to explain the etiology. Among them are: (1) a disturbance in lipid metabolism, (2) a disturbed nervous mechanism, and (3) a mycotic, bacterial, or virus origin.

There are few symptoms. In the acute outbreak, itching, smarting, or burning may occur. Only a small percentage of patients in the chronic stages experience pruritis and then only of a mild degree. The chief complaint is the embarrassment caused by the eruption which often curtails activities such as athletic pursuits and pleasure-producing hobbies.

The earliest lesion of psoriasis is a pinhead sized papule of bright red color. The papules slowly or rapidly increase in size to form larger papules and nodules which in turn coalesce to form plaques or patches. The earliest lesions are round or oval but as they coalesce various shapes are produced.

Healing takes place by central clearing resulting in a ring form hav-

ing a paler, depressed midportion and elevated red margins. After the active lesion regresses a red or reddish-brown stain is left which persists for a varying period of time and eventually disappears without scar formation.

The sites of predilection are the elbows, knees, the extensor surfaces of the forearms and legs, the scalp, and the sacral regions. These areas become covered with scales which persist.

Treatment demands complete cooperation on the part of the patient. The drug most effective is arsenic administered as Fowler's solution. However, this must be carefully supervised and adequate rest periods given to avoid untoward results.

Sunlight is an efficient therapeutic agent. Most patients with psoriasis obtain more relief in summer than in winter and those areas exposed to the sun clear more rapidly. The ultraviolet light is much less effective than sunlight.

Lane, Clinton W.: *Treatment of Psoriasis*, *Postgrad. Med.* 4:505-511 (January) 1949.



### Epistaxis

A rich vascular network is found in the lower anterior portion of the nasal septum. It is located in the mucosa covering the quadrangular cartilage at its union with the anterior nasal spine.

The network of vessels is formed by a series of anastomoses between the arterial branches from the sphenopalatine, upper palatine, and ethmoidal arteries, particularly the anterior one, and the arterial branches of the subseptal area from the arteries of the nasal ala, originating from the facial artery.

Arterial rupture causing epistaxis is usually found around this union of vessels. This network really represents an anatomicophysiological misfortune because of the great fragility of the vessels. High hemorrhage of the anterior third of the septum and hemorrhage from the more posterior-

ly located varices are seen to a lesser extent.

Actually epistaxis is a symptom. Frequently it is a symptom of a blood alteration which is essentially caused by liver insufficiency. The most effective and rapid treatment is therefore that directed against the basic cause.

Epistaxis may be divided into (1) traumatic, and (2) clinical types. The traumatic type is caused by intense or by small trauma. The clinical type is caused by local or extranasal causes. Depending on the degree of injury, traumatic epistaxis will usually require packing with gauze for its control.

In epistaxis from local clinical causes, the hemorrhage originates from the area where the pathologic process is located. Such processes include: (1) tuberculosis, (2) syphilitic guma, (3) mycoses, (4) ulcers from absorption of toxic powders like cocaine, (5) epitheliomas, (6) angiomas, (7) local dystrophies from poor nutrition, and (8) the margins of surgical perforations.

Hemorrhages from the margins of perforations occur particularly when the patient suffers from sinus infection; recent ulcers are more active than old ones. Occasionally epistaxis is a direct sign of maxillary sinusitis.

Packing may be done with simple or impregnated gauze and will act mechanically by compression. It should not be extended beyond a period of 48 hours. The involved vessel should be cauterized with silver nitrate, chromic acid, or galvanocautery. All these methods aim at cicatrization by clot formation. If the clotting mechanism of the body is deficient causal treatment must be added.

Liver extract should be given in nearly every case of epistaxis. This not only supplies the hepatic factors but also corrects the vitamin A, B, C, and K deficiency. Frequently treatment must be continued two to three months until the functional reserve of the liver is established.

Cora Eliseht, Felipe: *Simple Epistaxis*, *Prensa Med., La Paz* 35:1819-1822 (September 17) 1948. *Translation in Internat. M. Digest* 54:8-9 (January) 1949.



### Gout Allergic Factors

The average age of onset of gout is about 40. A period of fifteen years often elapses before a correct diagnosis is made. The majority of patients are men.

It is generally recognized that the essential features of this condition consist of (1) arthritis with or without podagra, (2) hyperuricemia and deposits of sodium urate crystals in the articular, periarticular and subcutaneous tissues, and (3) occasional manifestations of cardiovascular and renal involvement.

There is a complete reversibility of the arthritic attacks in the early stages. In the later phases there is a definite irreversibility, terminating in crippling, chronic, gouty arthritis with tophaceous deposits.

Heredity plays an important role in the condition. One of the most striking phenomena is the transmission in gouty families of hyperuricemia without the disabling symptoms of the disease. As high as 25 per cent of the relatives of gouty persons have high amounts of uric acid in the blood, according to recent surveys.

The frequency of the association of hyperuricemia with gout serves to differentiate it from other forms of arthritis although its exact role is not clear. Often there is no relationship between the amount of uric acid in the blood and urine and the degree of arthritic involvement. Paroxysms of gout may occur on one occasion with normal blood uric acid and on another with elevated blood uric acid.

It is generally felt that neither hyperuricemia nor abnormalities in the uric acid partition per se can be looked on as the provocation factors in the gouty attacks.

The sudden explosive nature of the acute gouty seizure, its regression, especially in the early stages, without any residual involvement of the acutely affected joint, and the elicitation of symptoms by certain foods or alcoholic beverages have led some students of the problem to suggest that allergy may play an important role



in the pathogenesis of the disease. This concept has both therapeutic and practical significance, particularly when prophylaxis and treatment are considered.

It is possible to precipitate acute attacks of gouty arthritis and hyperuricemia by specific allergenic excitations in persons with a predisposition to gout and arthritis. Ingestion of various amounts of purine- and-fat containing foods are harmless as long as sensitizing substances are avoided. Thus, it appears that these individuals are allergic and that their shock tissues are located in the articular structures.

Bacterial sensitization has also been observed to induce gouty attacks. When exposure to several allergens is made there is a greater degree of severity and an increased number of shock organs participate. It seems therefore that uric acid and allergy complement each other and must be considered equally responsible in gouty attacks.

However, this is not entirely the case, as the gouty person is often free of symptoms in the presence of a high level of uric acid in the blood. Perhaps the role of uric acid is passive rather than active.

Emphasis should be directed to the specific and nonspecific excitants of either exogenous or endogenous origin which play the active role in the development of gouty symptoms. The causal therapy includes the elimination of offending foods and pollen immunization.

Harkavy, Joseph: *Allergic Factors in Gout*, *J.A.M.A.* 139:75-80 (January 8) 1949.



### **The Herpes Problem**

Herpes simplex and herpes zoster are outstanding examples of virus diseases of the skin. They are frequently confused because they have a great deal in common. Histologically the lesions are almost identical. The elementary lesions on the skin are small vesicles on an erythematous base.

## **CLINICAL AND LABORATORY SUGGESTIONS**

(See pages 262 and 263)

Form to be Used by Contributors

To: Clinical and Laboratory Suggestions Editor

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Subject: \_\_\_\_\_

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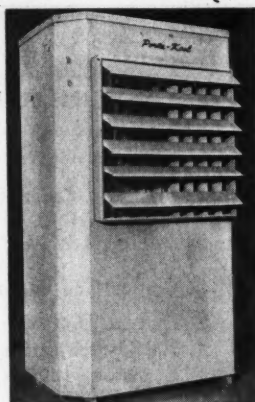
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There are some fundamental differences. Herpes zoster primarily attacks a sensory ganglion of a cranial or spinal nerve. The lesions appear along the distribution of a sensory nerve supplied by the involved ganglion. The lesions are almost always unilateral.

Herpes simplex lesions have no such limitations in their localization. The more common varieties of simplex are (1) herpes labialis, and (2) herpes progenitalis.

One attack of herpes zoster apparently produces a solid immunity. Recurrences are extremely rare. Herpes simplex, once established, tends to recur, usually in the same or a neighboring site. There is no evidence of immunological relationship between the two diseases. An attack of one does not protect against the other. The antibodies formed have nothing in common.

Herpes labialis is probably the most common form of herpes simplex. It is caused by a filtrable virus and recurrences are the rule. The term "cold sore" is used by the laity to denote the condition or any other condition resembling herpes labialis. It is a common belief that the "cold sore" is precipitated by a cold or other infectious disease.

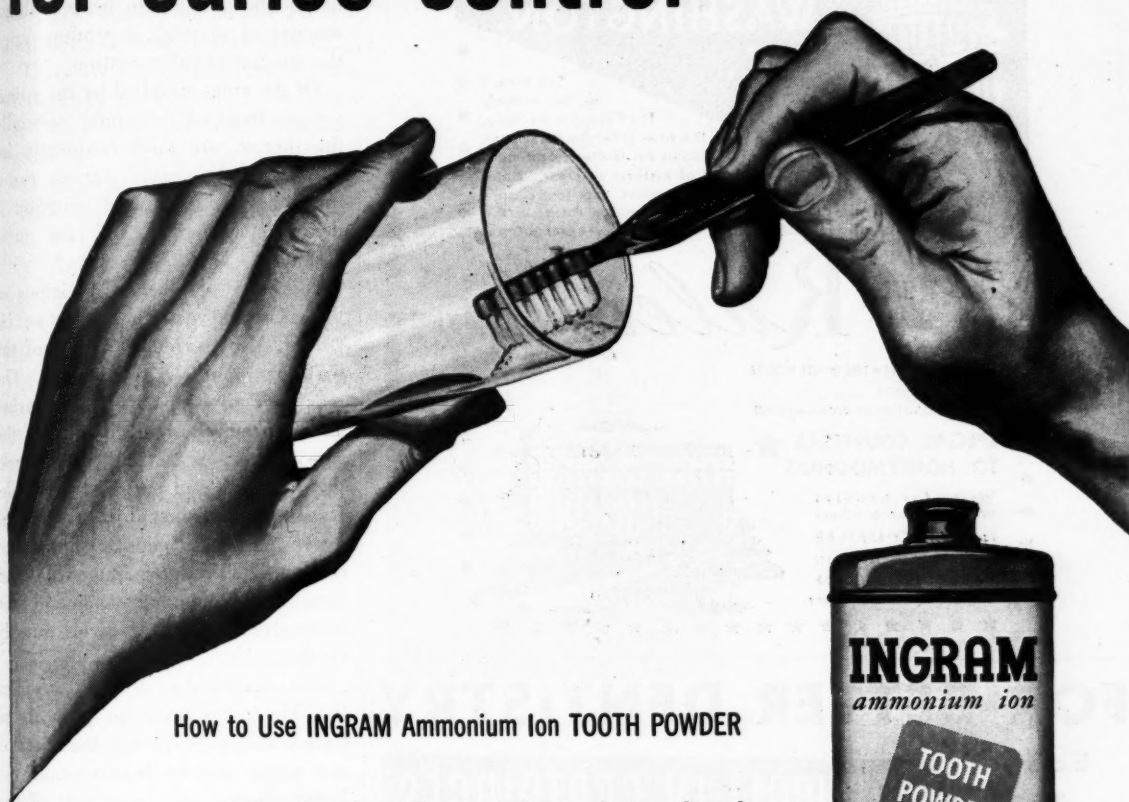
Recurrences of herpes labialis may be precipitated by the following: 1. Fever. 2. Trauma. 3. Exposure to ultraviolet rays of the sunlight or artificial light. 4. Certain foods. 5. Indigestion. 6. Drugs. Herpes progenitalis may be precipitated by sexual excitement and in females by the menstrual period.

Herpes simplex should not be over-treated. Mild astringents on skin and lips and gentian violet solution on the mucous membranes are sufficient.

Herpes zoster is a profound disturbance. It not only causes a transitory skin eruption but it also has a destructive effect on the sensory nervous system. The clinical picture is typical. A group of small, irregular, tense, clear vesicles appear on an erythematous and edematous area of the skin, and are associated with a burning sensation.

In the next four to eight days new crops appear in new areas along the  
(Continued on page 272)

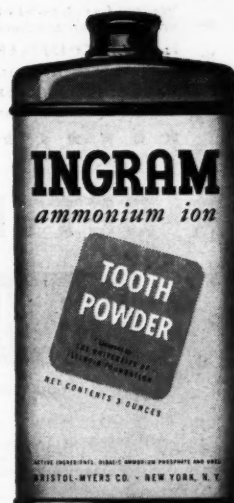
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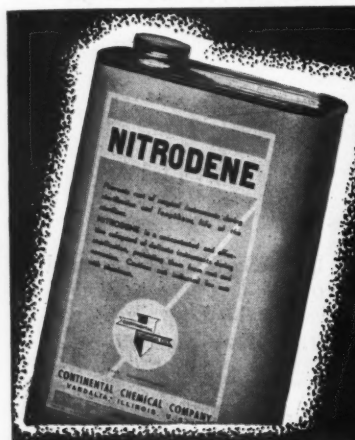
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(Continued from page 20)

zone of skin supplied with sensory nerves by the ganglion involved. In the average case the lesions crust over, dry, and exfoliate in the course of ten days. The skin heals with an amount of scarring depending upon the amount of inflammation.

Of the areas supplied by the spinal ganglia those on the trunk, especially the thorax, are most frequently involved. Of the cranial nerves, zoster involving the trigeminal ganglion is the most common and the most serious.

One, two, or all three divisions of the gasserian ganglion may be involved. Most serious is zoster of the first or ophthalmic division. The maxillary division of the gasserian ganglion supplies the upper lip, the side of the nose and adjacent cheek, the lower lid, and part of the temple. It also supplies the conjunctiva of the lower lid, the mucous membrane of the upper jaw, and the uvula and tonsil. When the mucous membrane is involved, herpetic vesicles quickly erode.

The mandibular division supplies the skin to the posterior part of the temple and adjacent ear, the anterior and upper part of the ear canal, the lower lip, the chin, and part of the cheek. In the mouth it supplies half the tongue, the floor of the mouth, and the buccal mucosa. When the mandibular division is involved, lesions in the areas of the mouth are common.

Treatment consists of soothing lotions in the vesicular state, such as calamine lotion. Mild antiseptic ointment such as 3 per cent vioform ointment is usually sufficient in the later stages. Aspirin or empirin tablets are usually necessary to control the neuralgia.

Ebert, Michael H.: *The Herpes Problem*, *M. Clin. North America* **33**:145-163 (January) 1949.



### Pre-anesthetic Medication

For a patient about to undergo a surgical operation, probably the most important phase of the anesthetic is

the pre-anesthetic medication. It is actually as important as the proper choice and administration of the anesthetic agent. With most anesthetic agents, the proper or improper pre-anesthetic medication of the patient may make or break the anesthetic.

There are five cardinal reasons for preliminary medication: 1. To mitigate the toxicity of local anesthetic agents.

2. To secure mental rest and effect a safer and better anesthetic.

3. To lessen secretions.

4. To overcome autonomic over-activity.

5. To lower the basal metabolic rate to a satisfactory starting point.

A local anesthetic agent may be very toxic to a patient. An untoward effect is manifested as a mild or severe procaine reaction. With a mild procaine reaction a patient may have a slow pulse, low blood pressure, clammy appearance, and may break out in a cold sweat. In addition, there may be central nervous system manifestations such as a depression or a marked apprehension during which the patient may have a feeling of impending death.

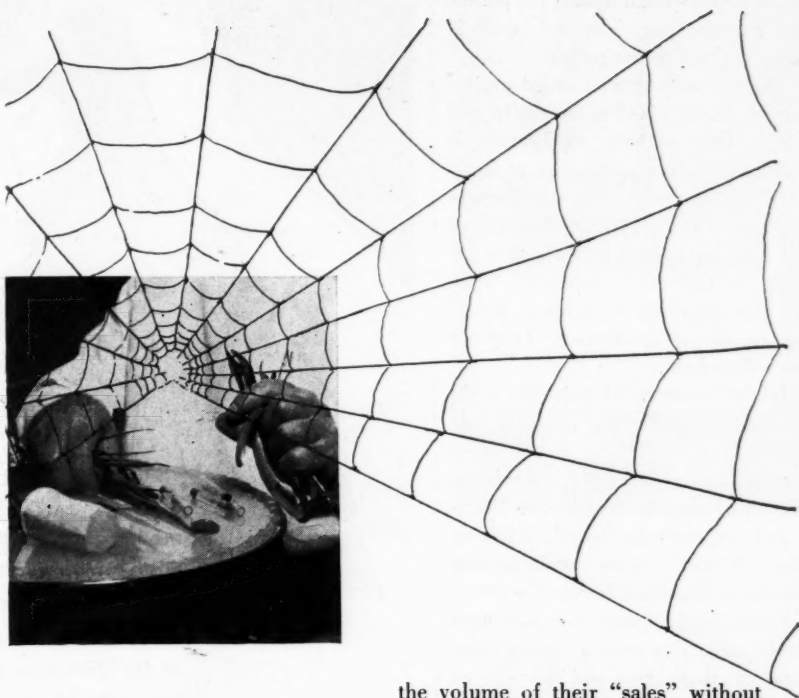
The so-called mild procaine reactions may develop into severe ones manifested by coma, convulsions, or death. A procaine reaction may be prevented by the administration of a barbiturate two hours before the local anesthetic is to be administered.

Local anesthesia does not in itself abolish the sense of touch and the mental trauma which the patient may suffer. Therefore, pre-anesthetic medication should often be carried out to the point of actual amnesia.

Mental rest should begin the night before the operation. Worrying about the impending operation may lead to mental exhaustion. Also, because of a long-continued rapid pulse due to nervous excitement, cardiac exhaustion is possible. Therefore, it is wise to sedate the night before the operation with a short-acting barbiturate such as nembutal, seconal, amytal, et cetera.

Mental rest is essential because it is well known that primary shock may be of neurogenic origin. If primary shock is added to the toxicity, opera-

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## Don't Be a *Mumpsimus*

When you start being a mumpsimus "that is the beginning of the end of you and your practice," says Doctor Edward L. Wharton in an article you won't want to miss. (Don't worry over the definition of the word. Doctor Wharton tells you its dictionary—and dental—meaning.)

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Organized dentistry *must* serve the whole Nation, either voluntarily or by Government regulation! With half of the dentists in the United States concentrated in only six states, and with 112,000,000 people in forty-eight states suffering from crippled or diseased mouths, the Government *must* institute reforms if the profession does not soon work out a plan to give the whole Nation adequate dental care. Doctor Harry Berlin carefully analyzes a situation which may affect the personal welfare of every dentist in the country.

★ ★ ★

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tive trauma, and loss of blood, a serious condition may develop.

The more emotionally excited a patient is, the higher the basal metabolic rate. This necessitates a greater and more toxic amount of anesthetic agent in the blood stream than if the patient had a lower rate. The end result is more toxicity to the patient.

The properly premedicated patient can be anesthetized more easily and safely. Pre-anesthetic medication is important in the prevention of autonomic overactivity. The barbiturates are important for premedication of the nervous patient because they inhibit sympathetic overactivity. They are also especially valuable in relieving emotional excitement. They do not relieve pain.

In the presence of pain the night before an operation, an analgesic drug such as morphine or one of its derivatives is indicated. Morphine lowers the basal metabolic rate directly and indirectly by its pain relieving effect. It also causes euphoria and thereby still further lowers the rate.

Premedication should not be used empirically. For major surgery the basal metabolic rate and the type of anesthetic agent should be considered when planning the routine of premedication for the individual patient.

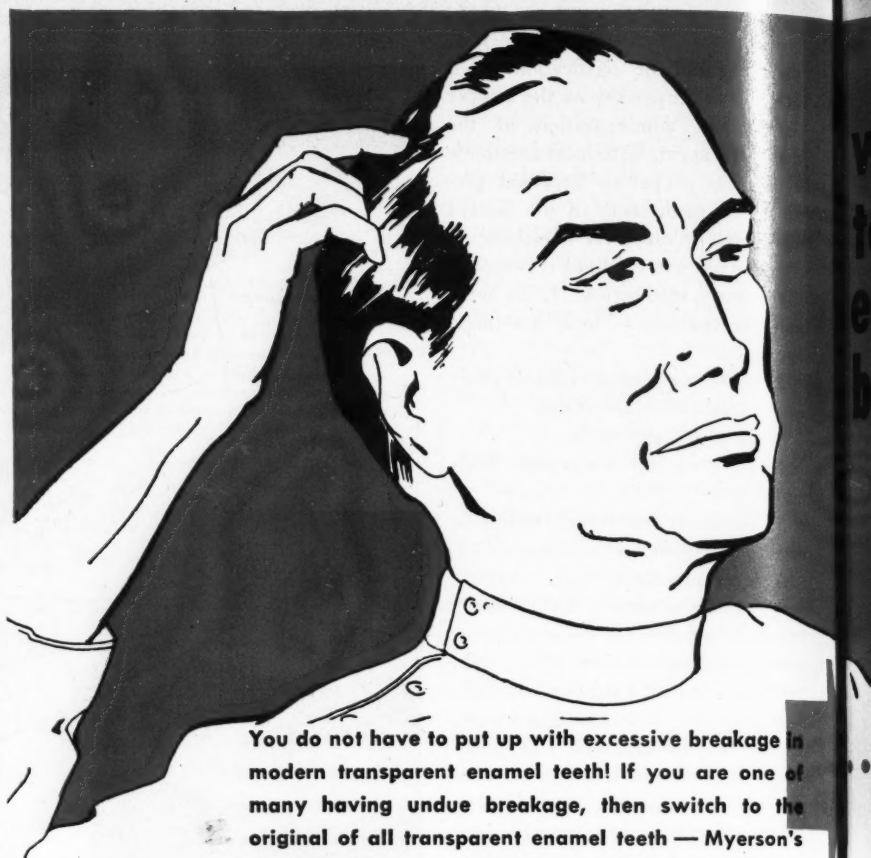
*Bittrich, N. M.: Pre-anesthetic Medication, J. Michigan M. Soc. 48:37-41 (January) 1949.*



### **High Fat Diets and Coronary Disease**

Many cardiologists are supporting the idea that there is a connection between fat metabolism and intimal atherosclerosis, especially of the coronary arteries. Evidence has been published to support the idea that in the presence of coronary disease there is a disturbance on the part of the body as a whole or locally within the walls of the arteries during the metabolism of fats, especially cholesterol.

Early intimal atheroma consists almost entirely of cholesterol. This fact suggests a relationship between high fat diets and coronary disease as does



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the fact that certain races having diets low in fats have a low incidence of coronary disease. There is an increased incidence of coronary disease in persons with high blood cholesterol whether familial or due to disease.

Repeated ingestion of meals high in fat may produce atheroma even though only a small percentage of the fat is in the form of cholesterol. It is not yet known definitely whether diets high in fat can initiate coronary

atheromatosis. However, there is evidence that high fat diets may be harmful to those persons who already have coronary artery disease.

Although the considerable incidence of peptic ulcer in patients with coronary disease is probably coincidental, an empirical survey seems to indicate that the usual ulcer diet, rich in fats and cholesterol, tends to have an adverse effect on the course of arterial disease.

It seems quite likely that the inges-



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tion of excessive amounts of fats may cause deterioration of an arterial wall already the site of atheroma. Positive conclusions are still unjustified because of the small number of cases investigated. However, the results to date are striking enough to warrant further investigation.

In the meantime it is wise to use caution in recommending a high fat diet for patients suffering from coronary cardiac disease or persons suffering from diabetes, hypertension, and

myxedema in whom there are potentialities for coronary disease. In such persons it would seem wisest to use ulcer regimens in which frequent feedings of food low in fat are emphasized.

*Editorial, High Fat Diets and Coronary Diseases, Postgrad. Med. 4:541-542 (January) 1949.*

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Manuscripts**

IN A BIT of advice to authors the Midwestern Writers' Conference has a few words to say that any editor will approve. A good many articles never find their way into print and many budding writers die on the vine because they never learn the importance of a clean manuscript. It isn't likely that an editor will read a blotted bleary manuscript or one with the

anemia that comes with a wornout typewriter ribbon. Nor is a manuscript in longhand likely to be read, even if the penmanship is as good as Mr. Palmer's. And don't forget that editors have an aversion to a manuscript that is typed single space. The brain child of the writer, his precious thoughts and figures of speech, are merely another manuscript as it comes to an editor's attention. If the "package" that carries the thoughts (the manuscript) is attractive and offers an invitation to reading, the editor is likely to be more favorably disposed to the contents.

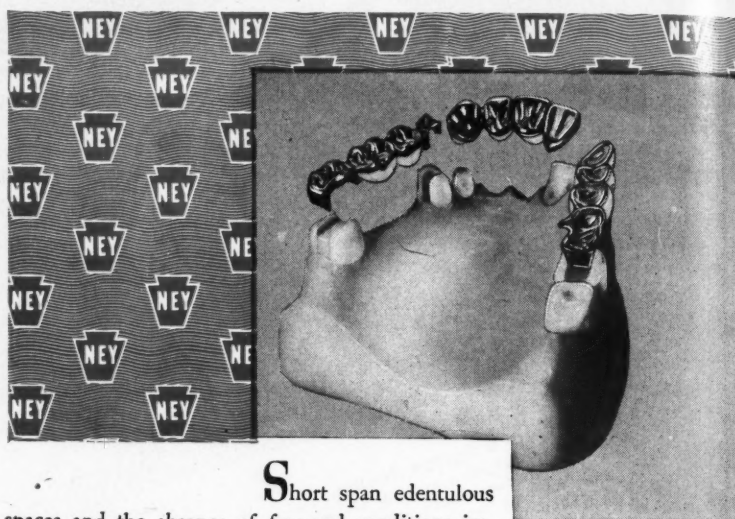
Here is the advice to aspiring authors and it is just as good advice to a dentist who is planning to write for publication:

"In the several weeks spent in the preliminary reading of manuscripts entered in the Novel Contest, and the Non-Fiction Book Length Contest, for four prizes, each of \$1000, several facts of importance to writers were noticeable.

"It is surprising, but out of all the manuscripts submitted, not more than three or four were properly presented. Just recently Leonard Finley Hiltz, speaking before one of our Writers' Clinics, stressed the necessity, important to writers as to cereal manufacturers, of "packaging the product." And in the Novel Contest we were forced sadly to admit that ninety per cent or more paid no attention whatever to the matter of "packaging the product." The chief sin was the use of outworn typewriter ribbons. One manuscript, a good novel with a fine chance of acceptance, was written with such a faint ribbon as to be almost impossible to decipher. Because the text was good, it was sent on to the publishers, but if we know anything about human nature, it will never get past the most indulgent of readers, and if it did the editor himself would not grant it more than a glance long enough to assure him that the manuscript was too difficult to read.

"Other manuscripts were interlined in longhand, many had paragraphs almost a page in length, others dialogue in which two or more persons conversed all through a paragraph

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**S**hort span edentulous spaces and the absence of free-end conditions immediately point to this as a case to be solved by fixed restorations. Since the eight remaining teeth showed sound, healthy root structure and adequate bone support, there was no doubt that fixed bridges could be made that would give many years of comfortable and efficient service.

First of all a study cast of the mouth was made and the abutment preparations planned and cut on that model. Thus they could all be lined up for parallelism to eliminate any difficulty in seating the finished bridges. With the model now serving as a three dimensional "blueprint," the teeth were prepared in the mouth. The inlays were waxed and cast and the veneer crowns for the cuspids completed.

The pontics for both posterior bridges were made with TruPontics and cast gold occlusal surfaces. Care was taken in grinding in the TruPontics to provide sufficient thickness of gold over the occlusal to give plenty of

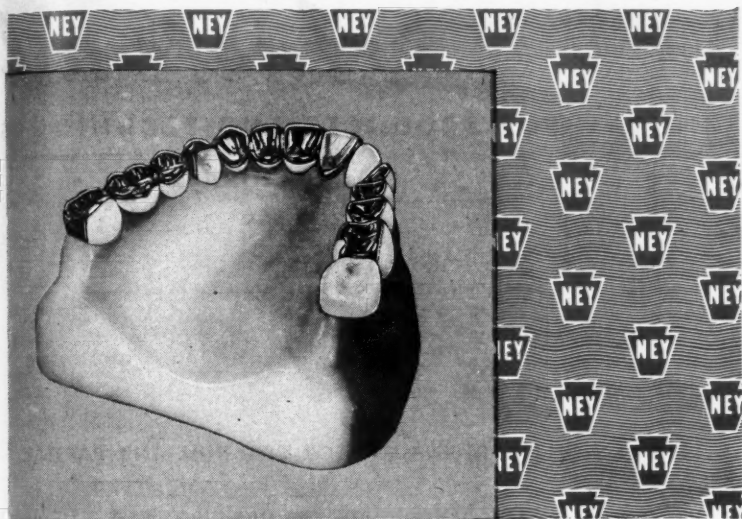


instead of in separate paragraphs, one for each. It takes a stalwart soul to keep an open and favorable mind toward manuscripts which show such carelessness and inattention to the convenience of the reader. Further, half the effect of carefully devised sentences, or characterizations, is lost while the reader is trying to decipher faint typescript."

Without any fault-finding, because we are anxious to examine as many manuscripts as possible, we would like to make a few suggestions to the

hundreds of contributors to our popular department, *Clinical and Laboratory Suggestions*. Please do not write your contribution in pencil. It is fine to write a first draft in pencil and express your thoughts. Write as clearly and directly as you can. Rewrite your idea in pencil a couple of times. Then when your method of expression satisfies you type the brief statement on the form supplied in the magazine. Or, if you prefer, send your contribution typed on a separate sheet of paper, but make it brief and to the

## . a Case History in NEY-ORO B-2



protection against accidental breakage. The anterior bridge was constructed with Steele's facings with cast gold lingual surfaces,—again with adequate gold thickness for protection of the facings.

Inlays and pontics were all cast in NEY-ORO B-2, Ney's *specific bridge gold*. This hard gold (A.D.A. Type C) provides excellent protection for the porcelain pontics and facings and has the necessary strength for abutment inlays and crowns. Its elongation is more than enough for any burnishing that may be required for perfect adaptation of margins after the bridges have been assembled and just before the final cementation.

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point. Give us a picture. Our art department likes understandable rough sketches to work from.

To contributors of regular full length articles we would suggest that you write as clearly as you can without attempts at a literary style or flourishes describing technical steps in their proper sequence. Make it simple. We would like to repeat a few gems of thought that have been known to journalists for years:

1. Easy reading is damn hard writing.

2. I didn't have time to write a short story so I wrote a book.

3. Write and revise, write and revise again. Go over a manuscript carefully at least three times.

4. Beware of "inspired" writing. What comes to pen easily is likely to be without value to anybody.

### **Dentistry Behind the Iron Curtain**

In a single eloquent sentence there has been described what happens to a profession under nationalization. A

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letter came to our subscription department from Czechoslovakia. We will not give the name of the writer or the exact address. It is not unthinkable that Red agents read even this column. They snoop into everything else in the country. The writer said he could not renew his subscription "as our business has been nationalized and we had to join a big state enterprise we do not wish to subscribe to DENTAL DIGEST anymore."

### **Notes on Retirement**

Whether you are 25 or 65 you will be compelled some day to give thought to retirement. The sooner we give the subject attention the more likely we will make a good adjustment on the day when we put down our dental instruments for the last time. Words of good advice were written by Doctor Thurman Rice in the *Monthly Bulletin Indiana State Board of Health*: "When the time comes for me to retire, and that time is not so very far away, I hope I shall go very gracefully. There are so many other things to do—books to read, phonograph



records to play, stamps to classify, my garden to tend, the lawn, the fruit trees to prune and to pick, the dog to play with, and possibly baby-sitting to do. Maybe I can write a little or make a talk—for what it is worth. If it should be a bitter article or speech please, please, just disregard it. It will merely be a senile old man muttering in his beard. If it is kind and sweet, if it is hopeful and helpful it may be of some use. The counsel of him who is old and wise and good—as I hope I may be—will be possibly worth listening to.

"I do hope that there will be opportunities which will permit me to keep my mind and spirit alive. I don't want the job of being the boss. I shall have had enough of the meat course—it is time to linger at the table and reminisce. I would so much rather be a kindly old codger on the side lines than be a harassed and cross old crab in the driver's seat. In such a way I hope to avoid senility. I am really and truly looking forward to what I hope may be a long senescence."

The hopes expressed by Doctor Rice are probably shared by all of us, particularly his prayer to enjoy a pleasant and mellow senescence rather than a crotchety senility.

—E.J.R.

### Care of the Dental Handpiece

THE DENTAL handpiece is a fine piece of machinery that needs constant attention. It rotates over 1,000,000 times in the average day's use. The bearings are finished to a clearance of 0.0002 of an inch, and if not properly cleaned and lubricated the ground tooth and metal particles will soon cut and ruin these bearings, giving the bur an excessive play. The majority of handpieces are chrome-plated bronze shells that have steel bearings either soldered or pressed into place at all points of wear. In the process of assembly, each part is carefully adjusted to give the utmost function. The head of the contra angle should not be taken apart since much of this fine adjustment may thereby be lost. The finest machine is only as good as the willingness of the operator to fol-

low instructions in its proper care.

### Various Parts

The head of the contra angle is the section of the instrument that requires the most constant care. The bur latch has the dual function of holding the bur in the bur tube and forming a cover over the portal that must be used for cleaning and lubricating the moving parts. *Do not let this become clogged as it is vital to the life of the contra angle.*

**Method**—In order to clean a contra angle, (1) open the bur latch, (2) be

sure that the portal into the head is open, and then (3) run the handpiece forward and backward for at least two minutes in a cleaning solution. The gears will serve as a centrifugal pump for carrying the cleaning solutions in and out of the head.

**Cleaning Agents**—1. The best cleaning solutions have a basic ingredient of petroleum ether spirits. 2. Do not use carbon tetrachloride as it will corrode the metal. 3. Benzene is a satisfactory detergent, but is expensive and explosive. 4. After rotating the handpiece in the cleaning

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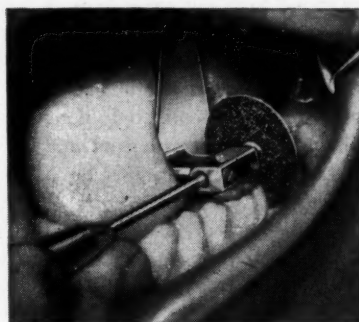
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solution, shake it and blow with compressed air to remove the solution. 5. The handpiece is then rotated backward and forward in oil, and oil is injected into the oil hole. 6. The oil should not have a soap base. To determine this, heat a small amount on a clean spatula over a Bunsen burner until the oil seems to disappear, then plunge the spatula into water. If the spatula is sticky, the oil has a soap base and is not satisfactory for handpiece use. This same stickiness would occur in the handpiece when it became hot, thus increasing

instead of decreasing friction and wear. 7. A fine grade of oil with a paraffin base is satisfactory. 8. Lubricate the handpiece by running it in oil at least twice a day.

## Removing the Head

Some experts on handpieces feel that the head of the handpiece should be removed after every ten to twelve hours' running to be thoroughly cleaned, dried, and lubricated. Under no circumstances should the bearings be disturbed. After a handpiece becomes badly worn the head can be



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packed with a satisfactory handpiece grease, which is forced into the bearings and gears by the pressure of replacing the head. The most satisfactory way of removing the head without scoring and possibly distorting is by holding the head in a vise padded with heavy cardboard and then grasping the head-to-elbow portion in a pair of pliers that are padded with either two thicknesses of towel or heavy cardboard.

## Lubricating and Sterilizing

A very satisfactory method not only of lubricating, but also of sterilizing a handpiece is to put oil in the container in one of the spray bottle heaters on the unit. This will heat to about 225° F. and is a convenient place to put the handpiece between operations. Autoclaved pipe cleaners may be used to take the excess oil out of the bur tube. Do not use mineral oil as it has no lubricating value. A light spindle oil with a flash point above 400° F. is the most satisfactory. A light gun oil could be used. Do

not try to use worn-out handpieces. A handpiece properly cared for will give many months more satisfactory wear than a neglected instrument. A dentist is quite frequently judged by the condition of his instruments, and his most used instrument is his handpiece.

From *The Bulletin of the U.S. Army Medical Department* 9:339-340 (April) 1949.

### **Relation Between Systemic Disturbances and Periodontal Diseases**

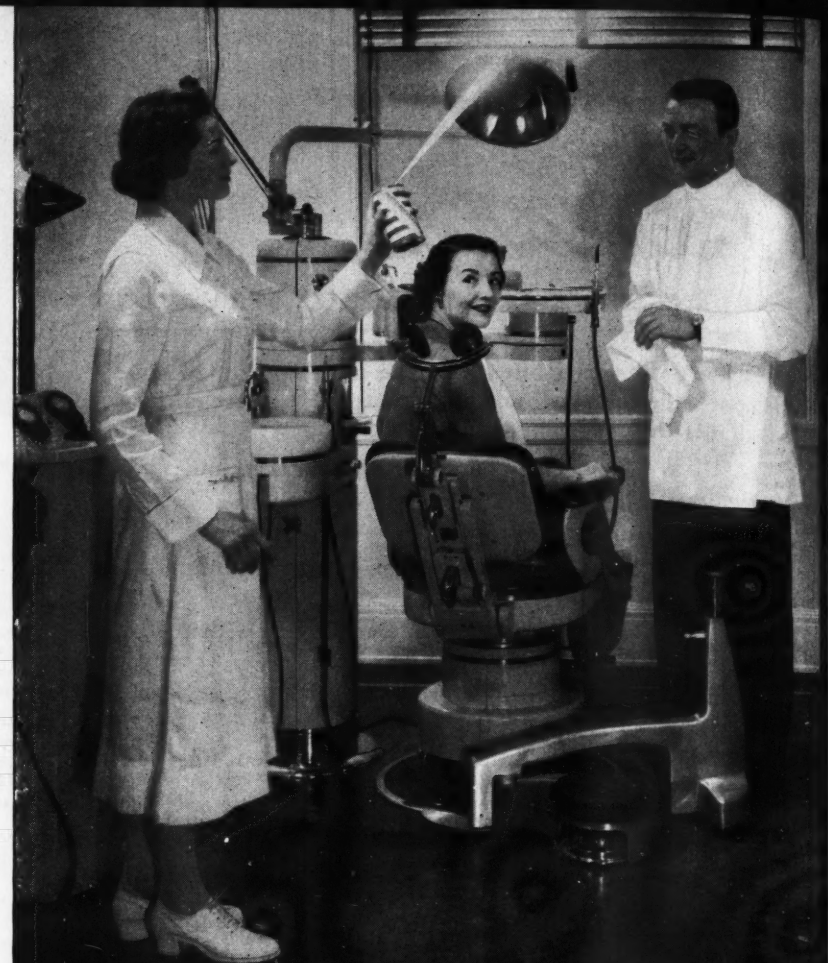
**Balint Orban, D.D.S.**  
Colorado Springs, Colo.

THE EFFECT of systemic disturbances in the production of periodontal lesions has never been clear. To be able to correlate clinical and histopathologic findings in a large number of patients a clinical diagnostic chart was devised. When such a chart is used it takes only a few minutes to make a complete survey of the gingival condition.

### **Gingivitis in Pregnancy**

The gingival condition of 530 pregnant women between the ages of 16 and 40 years, and ranging from the third to the ninth month of pregnancy was found to be as follows: 236, or 44.6 per cent presented no pathologic changes; 190, or 35.9 per cent showed mild gingivitis; 93, or 17.5 per cent moderate gingivitis; 8, or 1.5 per cent, severe gingivitis, and 3, or 0.5 per cent showed tumor formation. These data reveal that there is no significant difference in the prevalence of gingivitis in pregnant and nonpregnant women.

**Clinical Factors in Pregnancy**—1. Gingivitis in pregnancy is characterized by the localization of the inflammation to a few gingival papillae. 2. The edges of the gingival margins are often red, fringed, and swollen and appear sharply demarcated from the attached gingiva which is pale and firm. 3. Hyperplastic papillae tend to show considerable overgrowth. None of these symptoms is infallibly indicative of pregnancy since they may



*Worried about cross-infection.*

**... in your dental office?  
... in your reception room?**

be found in gingivitis of other age groups.

**Histopathologic Features**—1. Proliferative inflammation characterized by numerous mitotic figures in the epithelium, endothelium, and connective tissue. 2. Other features in the picture are (1) hyalinization of the epithelium, (2) pear formation of epithelial pegs, (3) disturbances of hornification, (4) microabscess formation, (5) accumulation of lymphocytes and lymphoblasts, and (6) pseudomembranous ulcerative in-

flammation. None of these features is exclusively characteristic of pregnancy.

**Conclusion**—Gingivitis in pregnancy is an inflammatory condition probably of local origin and modified by the systemic disturbance. Pregnancy is not to be considered the primary etiologic factor of the inflammatory condition.

### **Tissue Changes in Diabetes**

Biopsies were taken from thirty patients ranging in age from 10 to 71



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years. The duration of diabetes was three months to ten years. Conclusions drawn from this investigation were:

1. Gingival biopsies of diabetics showed a chronic inflammatory reaction characterized by the accumulation of plasma cells and lymphocytes.

2. The surface of the epithelium showed no characteristic pathologic changes.

3. Degeneration of collagenous fibers was observed in the papillary

as well as the reticular layer of the gingiva.

4. Thickening and hyalinization of blood vessel walls was a frequent occurrence.

5. Hyalin and calcified bodies were present in a large number of specimens.

6. The diabetic state seems to modify the reaction of the gingival tissues.

7. The diabetic state might be directly responsible for the degeneration of collagenous fibers due to in-

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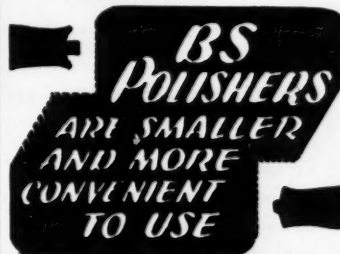
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Now you can obtain full denture cases that are miracles of stability, because the NEW Three In One Cream is by far the most advanced impression material ever developed for full dentures, etc.—the ideal material for both static and non-static technics.

**Tissue Changes in Leukemia**

Biopsy specimens were obtained from thirteen cases. From these studies it was determined (1) that the chronic forms of myelogenous and lymphatic leukemia do not produce characteristic gingival changes, and (2) that some of the other tissue changes in the epithelium, connective tissue, and blood vessels seem to be co-incidental and not a direct result of the systemic condition.

**Summary**

1. Systemic diseases have their effect upon gingival and periodontal tissues. The effect varies according to the systemic disease.
2. The tissue changes in pregnancy are quite different from those in diabetes and neither bear any resemblance to changes associated with leukemia.
3. An acute type of inflammatory reaction with proliferative tendencies is characteristic of gingivitis in pregnancy.
4. A chronic degenerative type of reaction is evident in diabetes.

**Conclusion**

1. Pregnancy modifies the local tissue reaction.
2. Diabetes, in part, modifies the tissue reaction; in part, however, it causes their breakdown through degenerative tissue changes.
3. Leukemia causes specific changes (infiltration) of the gingiva.  
—From *Journal of the Colorado State Dental Association* 27:13-16 (March) 1949.

**What the Dentist Should Know About Heart Disease**

**Lewis H. Katz, M.D.**

ASIDE FROM the fact that the dentist needs to know about heart disease as a public-spirited member of the community and as a potential victim of heart disease, he also should know about heart disease because of its relationship to his practice. There are several aspects of heart disease that

creased protein breakdown.

Conclusions drawn from a study of diabetics concerned with (1) intra-oral roentgenographic changes in the alveolar process, and (2) a survey of changes in the oral flora of these patients were as follows:

1. Sixty of the 134 patients examined were edentulous.
2. Alveolar bone resorption both in amount and severity tended to increase in the severity of the diabetic condition.

3. Gingival pathology in general showed a similar trend to alveolar resorption.

4. Twenty-five of thirty-eight patients showed growth of hemolytic organisms.

5. The coefficient of association between the amount of hemolytic growth and the gingival state was .57.

6. No significant association was found between an increase in severity of the diabetic state and amount of hemolytic growth present.

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*Journal of the Canadian Dental Association*: "A study of this book will undoubtedly enlarge the concept of the dentist and broaden the base upon which successful dentistry may be practiced . . ."

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*Illinois Dental Journal*: "All in all, I consider this book to be one of distinction and clarity, and the author has provided us a factual background for intelligent thinking on a very timely subject. The book is recommended most heartily."

*Dental Survey*: "The author builds up a good case for the use of psychobiology in dentistry by evaluating man as a total personality, by taking into consideration both his physical structure and his mental make-up."

*Journal of the American Dental Association*: "The basic tenet of this book, namely, that man must be treated as a whole, is one of such importance that it certainly deserves to be formulated in a book for the careful consideration of dentists."

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are particularly important for the dentist. First, in his examination of the mouth he may notice petechiae, cyanosis, shortness of breath, or anemia, all of which may be clues to possible heart disease. He may thus be able to draw the attention of the internist to this possibility. Secondly, in certain circumstances cardiac pain may be referred to unusual locations, such as the jaw and the teeth. The dentist should be aware of this in his differential diagnosis, and when the suspicion of coronary disease is aroused he should refer his patient to the internist for check-up. But by far the most important fact about heart disease which the dentist needs to know is that infection of the gums and extraction of teeth may set up a bacteremia, especially of the streptococcus viridans variety, and may light up a subacute bacterial endocarditis on an already diseased heart. The presence of heart disease therefore should make the dentist particularly careful about extraction of teeth and more desirous of clearing up pyorrhea. It has been found that one of the most common causes of subacute bacterial endocarditis is extraction of teeth. Under such circumstances the use of penicillin in proper amounts has been highly recommended. In our hand and those of others such penicillin prophylaxis has been found efficacious. Finally, the use by the dentist of anesthesia which involves hypoxemia, as in nitrous oxide, is particularly hazardous in the presence of advanced heart disease and heart failure. The dentist would do well to consult an internist about such a case before using a general anesthetic. It is obvious that closer cooperation between the medical and dental professions is to be encouraged in patients having or suspected of having heart disease.

From *The Proceedings of the Institute of Medicine of Chicago* 17:286-287 (March) 1949. The Odontographic Society of Chicago. Regular Meeting, December 13, 1948.

### **Pulp Healing**

Pulp healing under two commonly used materials, zinc oxide eugenol

and calcium hydroxide water pastes, has been studied in exposed, sound young pulps. No healing was observed in exposed pulps capped with zinc oxide eugenol. However, when exposed pulps are capped with calcium hydroxide a rapid healing process is seen, relatively free of inflammation. —From *Journal of Dental Research* 28:106 (April) 1949.

## **BUY SECURITY BONDS**

### **Dental Meeting Dates**

Idaho State Dental Society, regular meeting, Idaho Falls, June 27-29

Wyoming State Dental Society, regular meeting, Laramie, June 27-29.

Maritime Dental Convention, regular meeting, St. Andrew's-by-the-Sea, Canada, August 31-September 2.

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Georgia State Dental Society, regular meeting, Savannah, November 13-15.

Ohio State Dental Society, regular meeting, Columbus, November 13-16.

Mid-Continent Dental Congress and St. Louis Dental Society, regular meeting, St. Louis, Missouri, November 20-23.

Greater New York Dental Society, regular meeting, New York City, December 5-9.

Kentucky State Dental Society, regular meeting, Louisville, March 29-31, 1950.

Oklahoma State Dental Society, regular meeting, Tulsa, April 16-19, 1950.

Michigan State Dental Society, regular meeting, Detroit, April 24-26, 1950.

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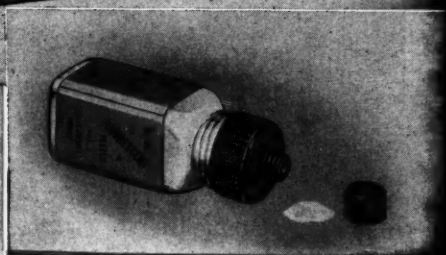
Vernon-Benshoff Co. .... 243

Warren-Teed Co. .... 246  
Williams Gold Refining Co. .... 281  
Wilmot Castle Co. .... 286

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The especially designed dispenser-top bottle enables use of smaller amounts of material and eliminates waste.



Each Kit of HATCH Fluorescent PLASTIC contains 1 oz. each of 12 shades of Plastic, and Light and Dark Incisal Shades; 2 two ounce bottles of liquid and sells for only \$27.50. Individual 1 oz. bottles of plastic \$2.50. 1/2 pound packages—\$12. 1 lb. packages—\$20.00.

Old Dental Dealers Exclusively

See second cover

D.D.6

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48TH & BROWN STS., PHILADELPHIA 39, PA.

Please send details concerning your Mold Guide.

Dr. \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_

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D.D.6

VERNON-BENSHOFF CO.  
P.O. BOX 1587, PITTSBURGH 30, PA.

Please send information concerning Vernomite.

Dr. \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_

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D.D.6

HANAU ENGINEERING CO., INC.  
1231 MAIN ST., BUFFALO 8, N.Y.

Please send FREE Catalog as advertised.

Dr. \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_

See page 245

D.D.6

COLUMBUS DENTAL MFG. CO.  
COLUMBUS 6, OHIO

Please send book mentioned in ad.

Dr. \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_

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D.D.6

WARREN-TEED PRODUCTS CO.  
COLUMBUS 8, OHIO

Please send information on Axotal.

Dr. \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_

See page 268

D.D.6

SUPERIOR APPLIANCE CO.  
721 MINNESOTA AVE., KANSAS CITY 14, KAN.

Please send information concerning your products.

Dr. \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_

See page 268

D.D.6

HYGIENIC DENTAL RUBBER CO.  
AKRON 8, OHIO

Please send information concerning Hygienic Products.

Dr. \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_

See pages 270-71

D.D.6

BRISTOL-MYERS CO.  
19 WEST 50TH ST., NEW YORK 20, N.Y.

Please send booklet describing the scientific background of Ingram Ammonium Ion Tooth Powder.

Dr. \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_

See page 272

D.D.6

CONTINENTAL CHEMICAL CO.  
VANDALIA, ILL.

Please send one can "NITRODENE" (\$1.60) through my dealer.

Dr. \_\_\_\_\_  
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## New Trouble-Free Regulator IMPROVES AUTOCLAVE TECHNIC

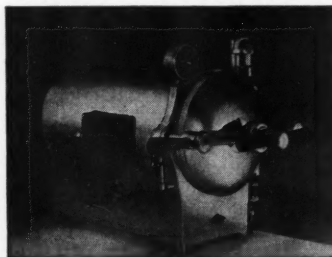
Sterilization Automatically Controlled  
at Selective Temperatures . . .



Time-tested, highly accurate, Castle's new Regulator maintains exactly the selected temperatures as needed for gloves, instruments, and dressings; it prevents pressure creeping up, ends safety valve "pops." Combined with other Castle features, the regulator allows quick recycling and quick reheating, provides added usefulness. You can do more sterilizing jobs in less time.

Castle "666" Autoclave has 8" x 16" capacity. Entire body is CAST-IN-BRONZE, chrome outside, tinned inside; steam-jacketed, with automatic temperature control and low water cut-off; automatic air ejector; steam gauge, safety valve, and steam silencer.

For full details, see your Castle dealer or write: Wilmot Castle Co., 1109 University Ave., Rochester 7, N. Y.



## Castle LIGHTS AND STERILIZERS

See pages 274-75

D.D.6

MYERSON TOOTH CORPORATION  
CAMBRIDGE 39, MASS.

Please send information concerning your products.

Dr. \_\_\_\_\_  
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See page 275

D.D.6

MEISINGER CO.  
150 FIFTH AVE., NEW YORK 11, N.Y.

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City \_\_\_\_\_

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D.D.6

THE J. M. NEY CO.,  
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Please send the Ney Inlay Book mentioned in ad.

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D.D.6

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City \_\_\_\_\_